PB82-224205

Environmental Impact Statement for Proposed Issuance of a New Source National Pollutant Discharge Elimination System Permit to Jacksonville Electric Authority, St. Johns River Power Park

(U.S.) Environmental Protection Agency
Atlanta, GA

Jun 82

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Jacksonville Electric Authority and Florida Power and Light Company propose to jointly construct a new source 1,200 megawatt coal-fired steam electric generating station known as the St. Johns River Power Park on a 1,656 acre site in northern Duval County, Florida. Station operation is scheduled to begin in 1985. This document assesses the proposed project and alternatives with respect to impacts on the natural and man-made environments. Measures available to mitigate adverse impacts are evaluated. The Draft NPDES Permit is included in the Document for public review.

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Region 4
345 Courtland Street, NE
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EPA 904/9-82-086
June 1982

EPA

Environmental Impact Statement

Final

Jacksonville Electric Authority St. Johns River Power Park

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EPA 904/9-82-096
NPDES Application Number:
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Final
Environmental Impact Statement

for

Proposed Issuance of A New Source National Pollutant Discharge Elimination System Permit

to

Jacksonville Electric Authority
St. Johns River Power Park

Prepared by:
U.S. Environmental Protection Agency, Region IV

Jacksonville Electric Authority and Florida Power and Light Company propose to jointly construct a new source 1,200 megawatt coal-fired steam electric generating station known as the St. Johns River Power Park on a 1,656 acre site in northern Duval County, Florida. Station operation is scheduled to begin in 1985. This document assesses the proposed project and alternatives with respect to impacts on the natural and man-made environments. Measures available to mitigate adverse impacts are evaluated. The Draft NPDES Permit is included in the Document for public review.

Comments or inquiries should be directed to:

F. Theodore Bisterfeld, EIS Project Officer
Environmental Protection Agency, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365
(404) 881-7458

Approved by:

Charles R. Jeter
Charles R. Jeter
Regional Administrator

April 13, 1982
Date

F

EXECUTIVE SUMMARY FOR
FINAL ENVIRONMENTAL IMPACT STATEMENT

St. Johns River Power Park
Jacksonville Electric Authority and
Florida Power and Light Company

( ) Draft
(X) Final

US Environmental Protection Agency, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

1. Type of Action: Administrative (X) Legislative ( )

2. Description of Action

The Jacksonville Electric Authority (JEA) and Florida Power and Light Company (FP&L) propose to jointly construct and operate a New Source 1,200 megawatt (MW) coal-fired steam electric generating station known as the St. Johns River Power Park (SJRPP) on a 1,656-acre site in northern Duval County, Florida. JEA has applied to the US Environmental Protection Agency (USEPA), the Florida Department of Environmental Regulation (FDER), and other Federal agencies for the permits necessary to construct and operate the proposed facility.

This document constitutes the Final EIS for the SJRPP and has been prepared in accordance with the Council on Environmental Quality regulations (40 CFR Part 6) for implementing NEPA. The Final EIS includes: (1) written comments made on the Draft SAR/EIS during the public review period (Section 3.1); (2) USEPA's responses to the written comments (Section 3.2); (3) comments made at the public hearing and USEPA's responses to these comments (Section 3.3); (4) JEA's comments on the draft National Pollutant Discharge Elimination System (NPDES) permit (Section 3.4); and (5) USEPA's responses to comments on the draft NPDES permit (Section 3.5). In an effort to reduce paperwork and costly preparation, the text of the Draft SAR/EIS has not been reproduced in the Final EIS. Copies of the Draft SAR/EIS are available from USEPA, Region IV.

The Draft SAR/EIS was prepared to satisfy both the requirements of USEPA under the National Environmental Policy Act (NEPA) and of FDER under the Florida Power Plant Siting Act. The Draft SAR/EIS was officially issued on October 30, 1981. The USEPA Region IV Administrator has declared the proposed plant to be a New Source as defined by Section 306 of the Clean Water Act. Operation of the SJRPP would require a National Pollutant Discharge Elimination System (NPDES) permit. Issuance of this permit would be a major Federal action significantly affecting the quality of the human environment and is therefore subject to the provisions of NEPA. Consequently, USEPA decided that an Environmental Impact Statement (EIS) should be prepared. Because under the Florida Power Plant Siting Act FDER is required to prepare a State Analysis Report (SAR) containing information similar to that required in an EIS, USEPA and FDER entered into a Memorandum of Understanding and agreed to prepare a single document. The joint document (Draft SAR/EIS) met the responsibilities of both agencies.

Need for the Project

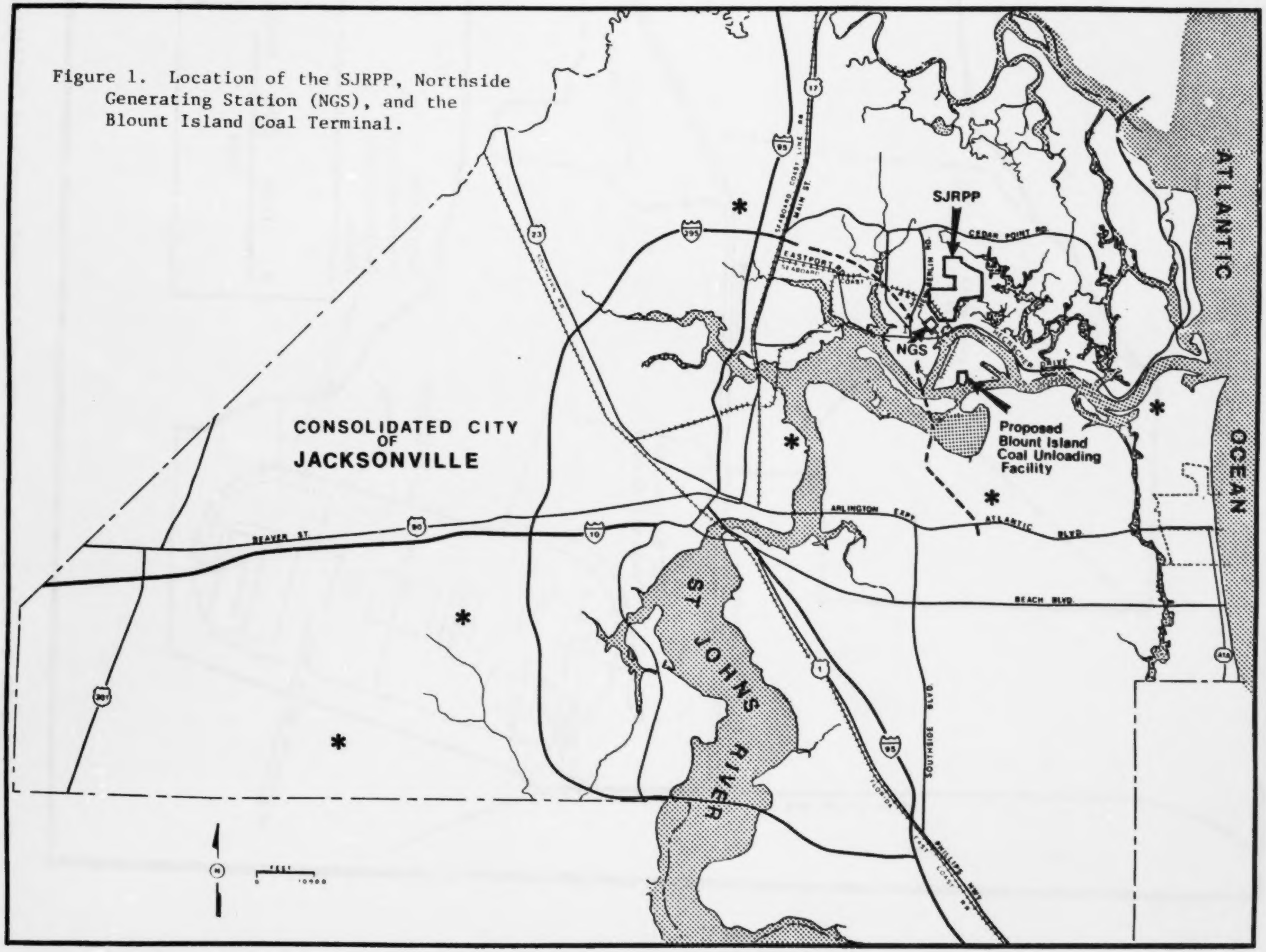
The Florida Public Service Commission (FPSC) has the responsibility for the determination of need for a new steam electric generating facility in Florida. JEA and FP&L applied to FPSC for a certification for startup of SJRPP Unit 1 in 1985 and of Unit 2 in 1987. The need for SJRPP was argued by the utilities in two ways: (1) additional capacity was needed to provided reliable electric service to their customers; and (2) SJRPP would reduce electric rates through the displacement of expensive oil-fired power generation.

Although no need was found for the additional capacity to be provided by the SJRPP for 1985 or 1987, the need for economic displacement of oil as the utilities' primary boiler fuel was clearly established. It was estimated by the FPSC based on "expected case" economic assumptions that the SJRPP could save JEA $95,985,000 in 1986 and $235,055,000 in 1990 and that savings for FP&L could reach $29,604,000 and $125,717,000 in the same respective years. On 26 June 1981, following the analysis of a variety of alternative energy sources and oil displacement technologies including purchase of power, conversion of oil-burning units to coal or coal-oil mixtures, and additional conservation, the FPSC certified the need for SJRPP Units 1 and 2 in the time frame proposed. This decision was based on what appeared to be the best available alternative for displacing oil. With regard to the need for additional capacity, the FPSC found that based on the conservation goals established for Florida by the Florida Energy Efficiency and Conservation Act (FEECA), JEA would not need the additional generating capacity provided by the SJRPP until 1991 and FP&L would not need the additional generating capacity until 1989. Also, the FPSC determined that from the standpoint of electrical system reliability for peninsular Florida as a whole, the new units would not be required until 1991.

Description of the Project

The St. Johns River Power Park site is located adjacent to the JEA Northside Generating Station (NGS) in northern Duval County adjacent to the St. Johns River (Figure 1). The present site consists of approximately 1,656 acres of which a portion is not considered to be suitable for development (Figure 2). The property is primarily owned by the North Shore Corporation. Site boundaries include New Berlin Road to the west, the Jacksonville North Landfill to the north, and marshes to the east and south (Figure 2). Trees, shrubs, and grasses comprise the majority of the site, totalling approximately 1,307 acres (Figure 3). Wetlands comprise approximately another 289 acres. The site is crossed by transmission lines from the NGS as well as by the Seaboard Coast Line Railroad which serves Blount Island.

The proposed plant will consist of two 600 MW (550 MW net) coal-fired generating units and will be aligned along an axis running from northwest to southeast (Figure 2). The plant rail loop will be enclosed by the service rail which will form an oval loop around the plant structures. A common stack will be utilized by both units. Coal handling facilities to accommodate delivery of coal by rail and for coal storage will be located to the south of


ATLANTIC
OCEAN
SJRPP
NGS
Proposed
Blount Island
Coal Unloading
Facility
CONSOLIDATED CITY
OF
JACKSONVILLE
ST JOHNS RIVER
CEDAR POINT RD
BERLIN RD
EASTPORT RD
SEABOARD COAST LINE RR
MAIN ST
HECKSCHER DRIVE
ARLINGTON EXPY
ATLANTIC BLVD
BEACH BLVD
BEAVER ST
SOUTHSIDE BLVD
PHILLIPS HWY
FLORIDA EAST COAST RR
SOUTHERN RR
95
17
295
23
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A1A
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10000
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Figure 1. Location of the SJRPP, Northside Generating Station (NGS), and the Blount Island Coal Terminal.

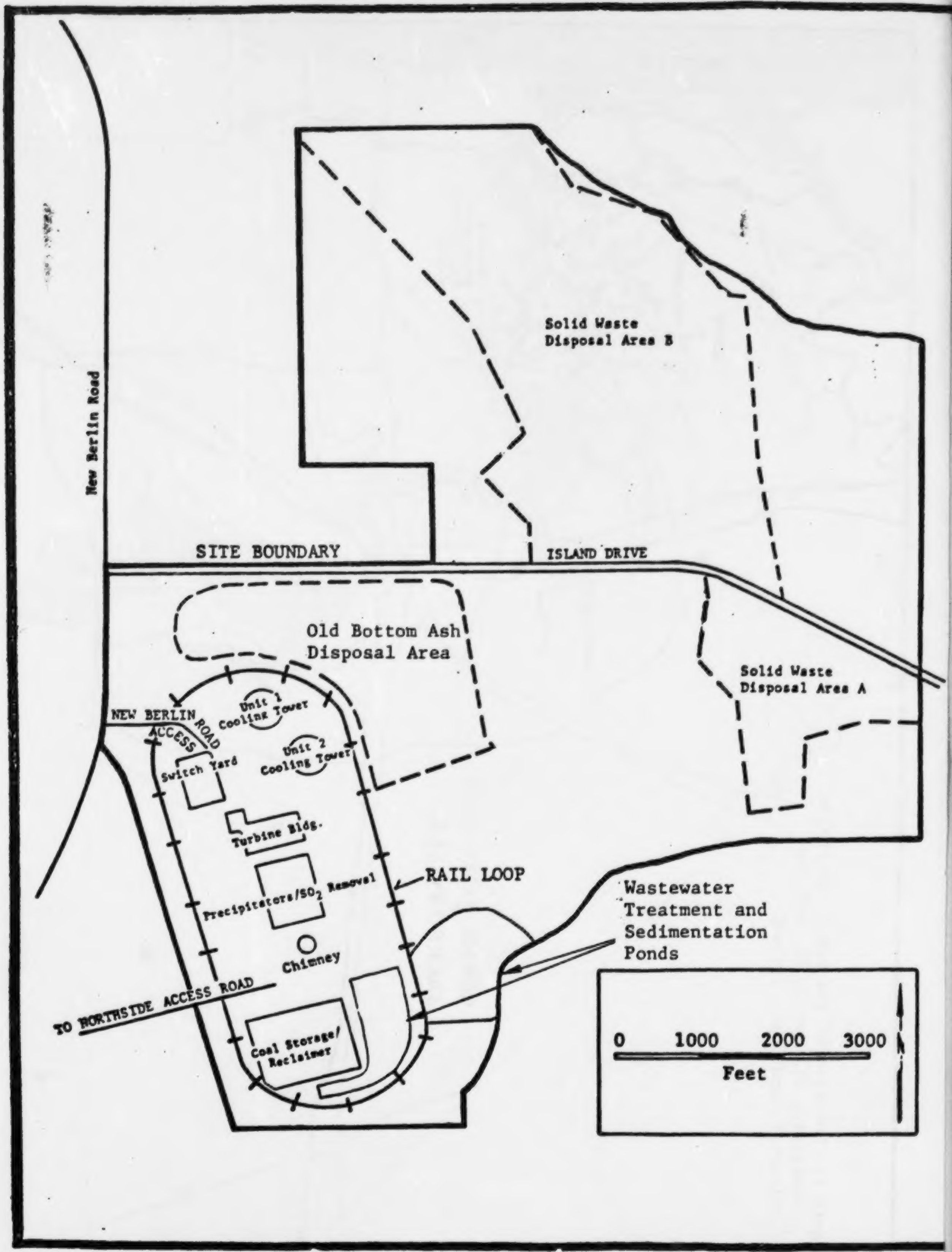

New Berlin Road
Solid Waste Disposal Area B
SITE BOUNDARY
ISLAND DRIVE
Old Bottom Ash Disposal Area
Solid Waste Disposal Area A
NEW BERLIN ROAD ACCESS
Unit 1 Cooling Tower
Unit 2 Cooling Tower
Switch Yard
Turbine Bldg.
Precipitators/SO2 Removal
RAIL LOOP
Chimney
TO NORTHSIDE ACCESS ROAD
Coal Storage/ Reclaimer
Wastewater Treatment and Sedimentation Ponds
0
1000
2000
3000
Feet

Figure 2. General layout of the proposed SJRPP and associated facilities (adapted from JEA/FP&L 1981a).

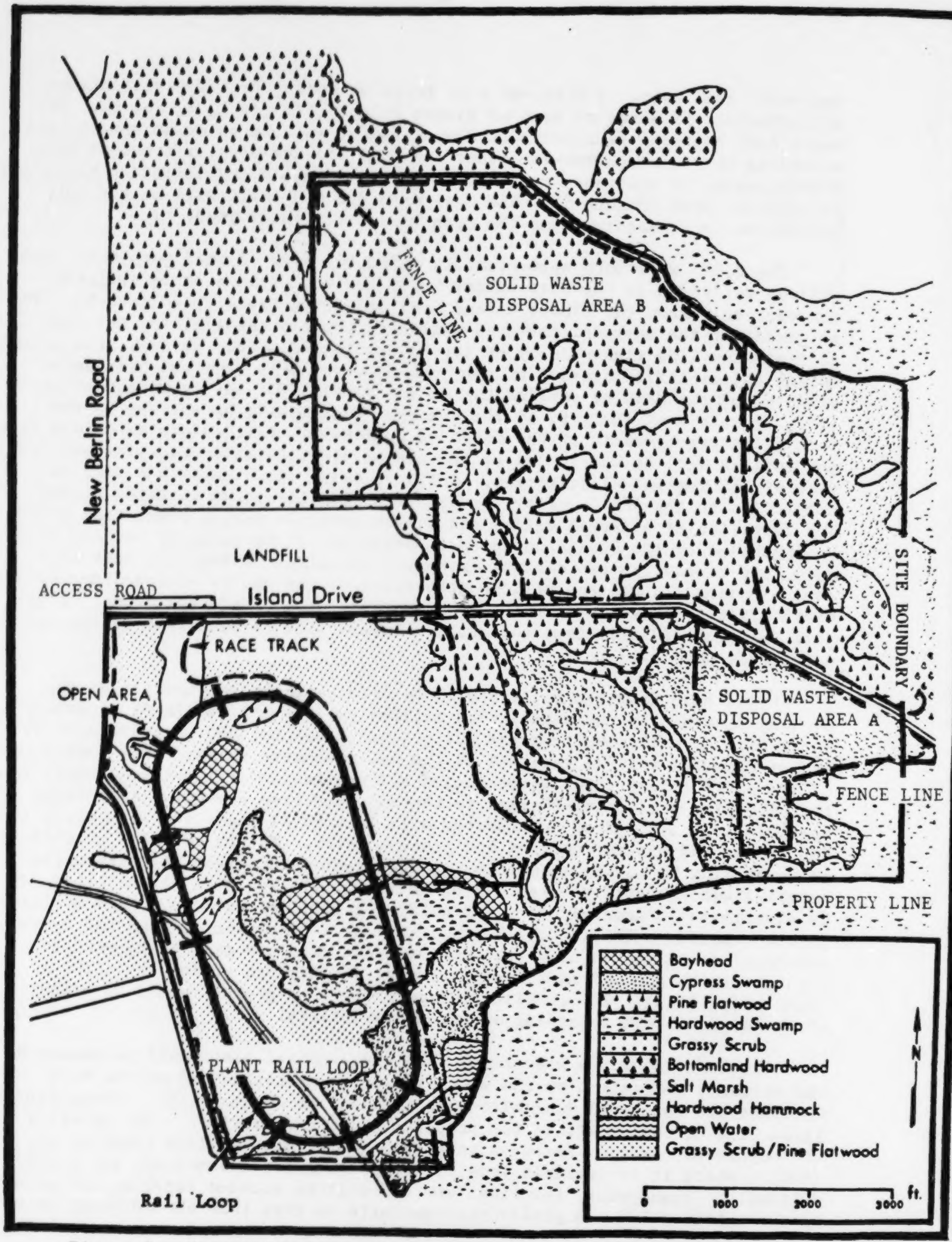

New Berlin Road
FENCE LINE
SOLID WASTE
DISPOSAL AREA B
LANDFILL
ACCESS ROAD
Island Drive
RACE TRACK
OPEN AREA
SITE BOUNDARY
SOLID WASTE
DISPOSAL AREA A
FENCE LINE
PROPERTY LINE
PLANT RAIL LOOP
Rail Loop
Bayhead
Cypress Swamp
Pine Flatwood
Hardwood Swamp
Grassy Scrub
Bottomland Hardwood
Salt Marsh
Hardwood Hammock
Open Water
Grassy Scrub/Pine Flatwood
N
0
1000
2000
3000
ft.

Figure 3. Vegetation community types on the SJRPP site (JEA/FP&L 1981a). Fence line as drawn in this figure includes additional areas to be protected as discussed in text.

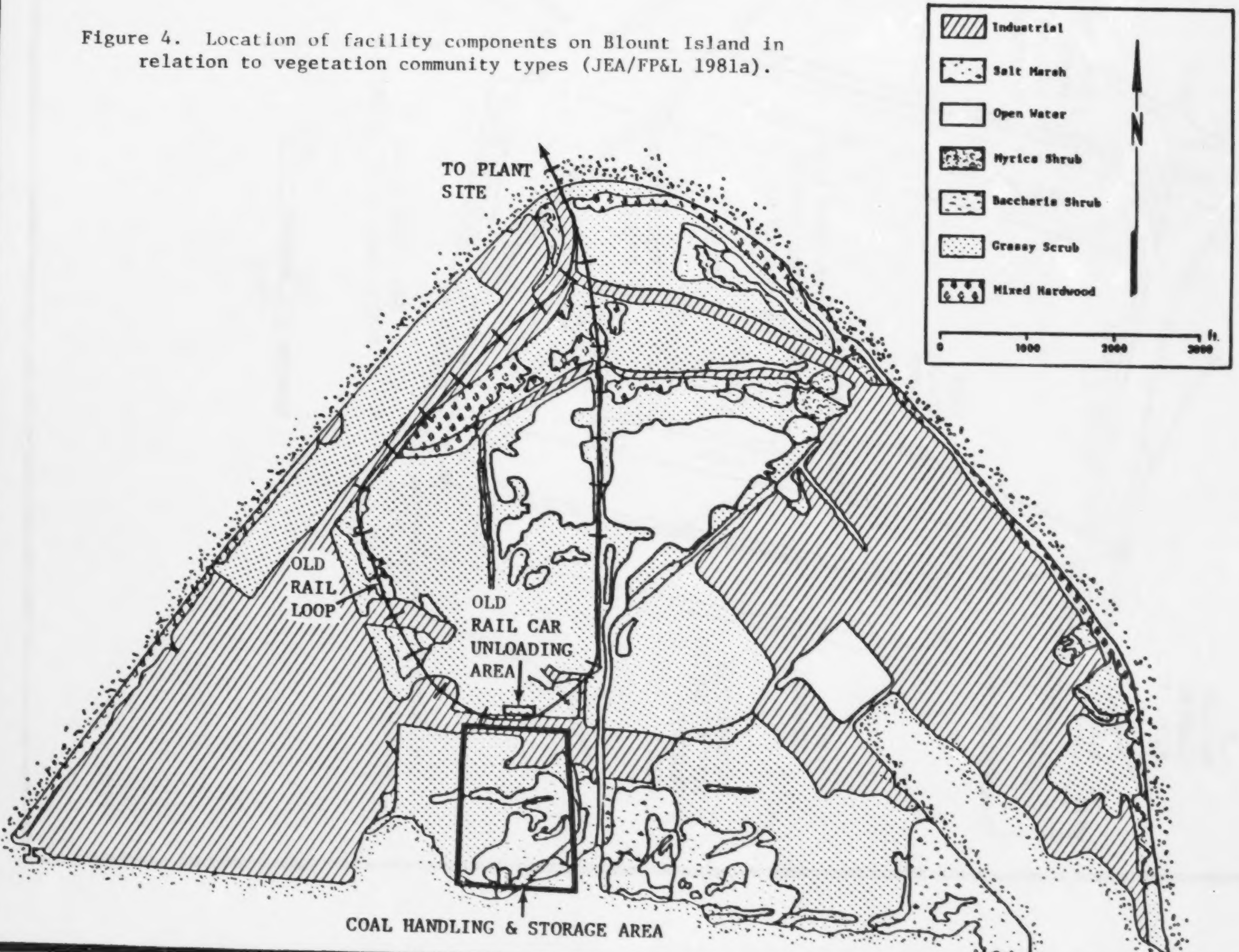
the plant rail loop. A proposed coal barge unloading facility will occupy approximately 55 acres of land on Blount Island (Figures 1, 4, and 5). The major coal handling facilities on Blount Island will be an ocean vessel coal unloading wharf, a stacker-reclaimer and coal storage pile, a conveyor belt loading area, an emergency coal stackout, and a runoff sedimentation basin and percolation pond (Figure 5). The coal unloader and wharf will be the only structures on or waterward of the mean high water (MHW) line.

The SJRPP will burn approximately 3,500,000 tons of coal per year. Coal will be delivered to the site either by 72 car unit trains or by enclosed conveyor belt from the Blount Island coal unloading facility (Figure 5). The alignment of the enclosed conveyor belt will roughly parallel the existing JEA transmission line right-of-way on the Blount Island site. However, the actual design and specific location of the coal conveyor belt have not been determined as of the date of publication of the Final EIS. Any crossings of wetlands or waters of the U.S. by the conveyor system will be subject to the permitting requirements of the Corps of Engineers. Particulate emissions from the boilers will be controlled by the use of electrostatic precipitators (ESP) with 99.78% removal efficiencies. Sulfur dioxide (SO_2) emissions will be controlled to the 90% level by the use of an FGD limestone scrubber system. The formation of nitrogen oxides and carbon monoxide during combustion would be inhibited by the design and proper operation of the proposed boiler, furnace, and combustion air control systems. Emissions of fugitive dust from coal handling and storage will be controlled by the use of enclosed conveyors, fabric filters at transfer points, and wetting of open storage areas. Fugitive emissions (drift) from the cooling towers will be minimized by the use of drift eliminators.

Waste heat from the boilers will be dissipated by two natural draft cooling towers. Approximately 49.5 million gallons per day (mgd) of makeup water will be withdrawn from the NGS discharge channel and an average of 35 mgd of blowdown will be returned to the NGS discharge channel just downstream of the SJRPP intake. During operation all wastewater effluent and runoff from the site also will be discharged to the NGS discharge channel. An average of approximately 3.8 mgd of groundwater will be used at the plant to operate the FGD system and provide service and process water. Bottom ash will be sluiced to dewatering bins. Subsequently, the dewatered and essentially dry waste material will be sold or disposed of on-site. Fly ash will be collected dry in electrostatic precipitators and sold or landfilled on-site. High quality gypsum (calcium sulfate) will be generated as a by-product of the FGD system and handled and stored on-site. Any revenues from the sale of by-product gypsum will be applied as a credit against the expense of fuel by SJRPP (Breitmoser 1981). The on-site storage of this by-product would be either short- or long-term depending on its marketability.

Transmission lines associated with the proposed plant will terminate at the Normandy Substation on the west side of Jacksonville and at the Fort Caroline and Robinwood Substations to the east of Jacksonville. Transmission lines will be routed within the proposed preferred corridor. The majority of the preferred corridor includes an existing transmission line right-of-way (ROW). Where it is feasible from an engineering, environmental, and system reliability standpoint, the final new ROW will be located parallel and adjacent to the existing ROW. A preliminary estimate is that this should occur in over

Figure 4. Location of facility components on Blount Island in relation to vegetation community types (JEA/FP&L 1981a).


Industrial
Salt Marsh
Open Water
Myrica Shrub
Baccharis Shrub
Grassy Scrub
Mixed Hardwood
N
0
1000
2000
3000
ft.
TO PLANT SITE
OLD RAIL LOOP
OLD RAIL CAR UNLOADING AREA
COAL HANDLING & STORAGE AREA

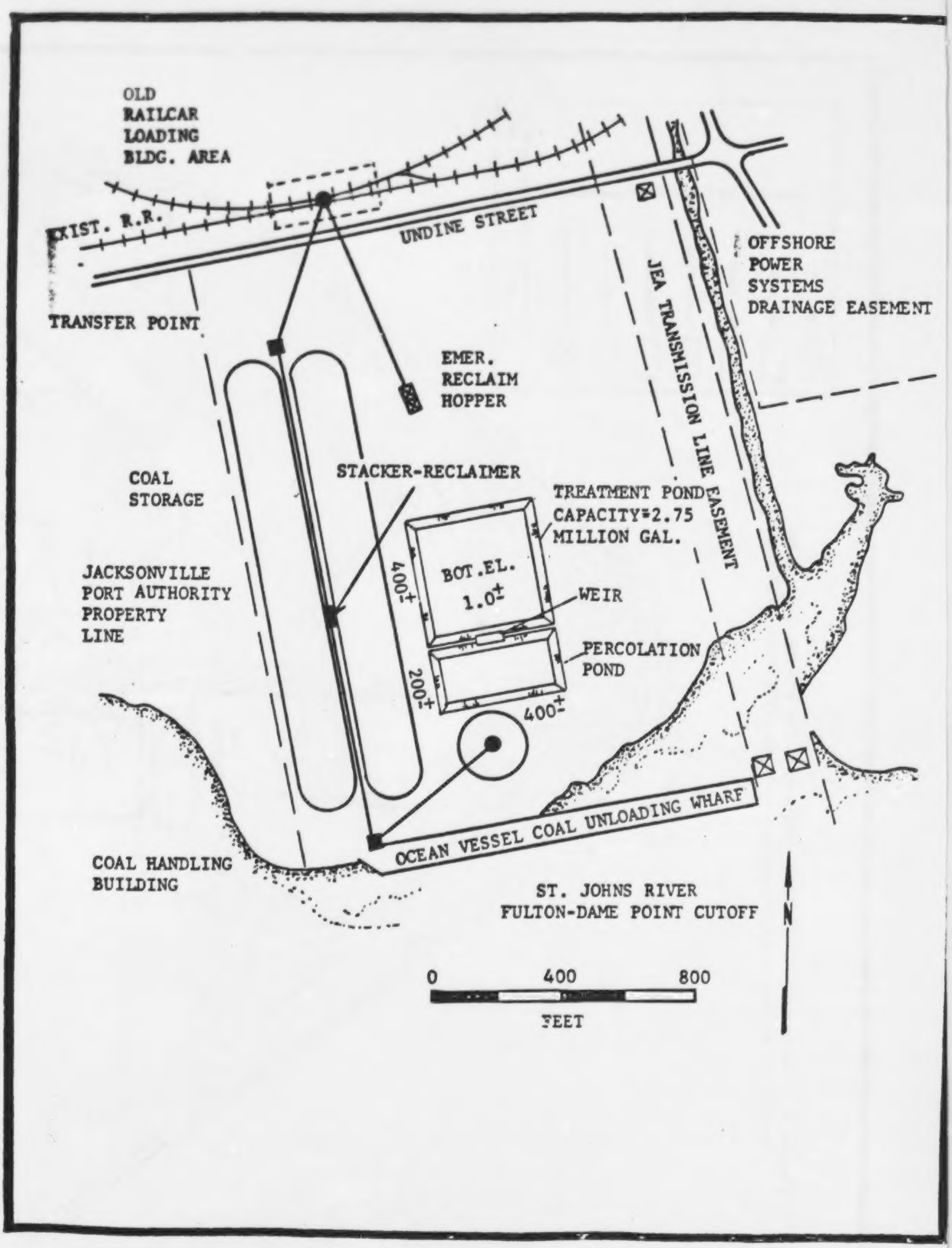

OLD
RAILCAR
LOADING
BLDG. AREA
EXIST. R.R.
UNDINE STREET
TRANSFER POINT
OFFSHORE
POWER
SYSTEMS
DRAINAGE EASEMENT
EMER.
RECLAIM
HOPPER
JEA TRANSMISSION LINE EASEMENT
COAL
STORAGE
STACKER-RECLAIMER
TREATMENT POND
CAPACITY=2.75
MILLION GAL.
BOT.EL.
1.0±
400±
WEIR
JACKSONVILLE
PORT AUTHORITY
PROPERTY
LINE
PERCOLATION
POND
200±
400±
OCEAN VESSEL COAL UNLOADING WHARF
COAL HANDLING
BUILDING
ST. JOHNS RIVER
FULTON-DAME POINT CUTOFF
N
0
400
800
FEET

Figure 5. Layout of Blount Island coal unloading facility (JEA/FP&L 1981a).

90% of its length. The new ROW will normally be 150 feet to 200 feet in width.

3. Major Plant System Alternatives

Alternative Sites

Alternatives were considered for each major aspect of the project including sites and plant facilities. Beginning in 1977, a detailed siting analysis was performed to identify potential sites and to assess their environmental and engineering suitability for a 1,200 MW coal-fired power plant. An initial screening yielded 20 candidate sites which were further evaluated on more specific environmental and engineering criteria and thereby reduced to six sites. During the following three years this series of sites was evaluated. Although two sites in Clay County (Willis Point and Walkill) were judged to be potentially more suitable, the JEA selected a site in Duval County known as the Eastport Site because of the economic benefits and the potential unavailability and/or political opposition faced by JEA in the selection of either of the Clay County sites.

Cooling Systems

Cooling system alternatives were evaluated with regard to the water source, the heat dissipation system, and the discharge receiving body. Natural draft and mechanical draft cooling towers were evaluated for heat dissipation. Natural draft towers were selected for use at the SJRPP because of their energy efficiency and lower potential for ground fogging. Cooling water source alternatives included groundwater, direct withdrawal from the St. Johns River, and reuse of cooling water from the once-through cooling system serving JEA's Northside Generating Station (NGS). Because of the reduced impingement, entrainment, and dredging effects and reduced costs associated with construction, the NGS discharge was selected as the makeup source for the SJRPP cooling system. The NGS discharge channel was also selected as the blowdown discharge point, because of the reduced costs and the reduced environmental effects on the River during construction and operation.

Air Pollution Control Systems

Air emission control system alternatives were evaluated based on consideration of the state of the art of emission control technology, environmental impacts, and cost. Major sulfur dioxide (SO_2) control alternatives included regenerative reactant systems, a lime spray dryer, and lime/limestone scrubber systems. Based on the current status of the technology, cost, and the availability of the raw material, the limestone scrubber technology was selected. Major particulate control alternatives included fabric filters and electrostatic precipitators (ESP). Based on the lack of experience with fabric filters (as applied to power plants) and cost factors, an ESP technology designed to meet BACT standards was selected. Other boiler emissions (e.g., NOx and CO) will be controlled by boiler design.

Water/Wastewater Systems

Groundwater and surface water were considered as alternative sources of makeup water for plant systems. Because the utilities hope to be able to market their high volume solid wastes, groundwater was deemed preferable to surface water as the source of makeup to the FGD and bottom ash sluicing systems. The use of saline water from the St. Johns River would result in excessive chloride contamination of the by-products. Wastewater systems were designed to recirculate and reuse water throughout the plant wherever possible and the NGS discharge channel was selected as the preferred discharge point. Chlorine, bromine chloride, and ozone were considered for control of biological growths in the cooling system. Although ozone and bromine chloride exhibit promising chararcteristics as biocides, chlorination with very careful control of residual oxidants was selected because of reduced cost and greater operating experience.

Solid Waste Systems

Alternative systems for the handling and disposal of high volume solid wastes (bottom ash, fly ash, and FGD sludge) were considered. Originally, wet sluicing to a bottom ash pond was selected as the preferred method of handling bottom ash, but this was later changed to wet sluicing, dewatering, and dry landfill disposal because of concerns over potential groundwater contamination. Because fly ash is collected dry in the ESP's, continued dry handling and disposal was preferred to wet sluicing with its associated wastewater stream. Alternatives considered for management of FGD sludge included on-site landfilling and sale as a by-product. The utilities intend to market the sludge (gypsum) if possible, but due to uncertainties about its final quality it may have to be landfilled on-site. A five-year test program has been required as a condition of the NPDES permit in order to determine how best to dispose of unmarketable FGD sludge and other high volume wastes. The program is also intended to demonstrate that the proposed long-term solid waste management plan will protect the quality of area groundwater resources. The test program will require that for the first five years, all solid wastes be disposed of in a 100-acre area adjacent to the rail loop (the previously designated bottom ash disposal area) (Figure 2). This site is located well above the 20 foot elevation which will minimize the potential for groundwater contamination or contamination of adjacent surface waters or wetland areas with solid waste leachates.

The five-year solid waste test program will be conducted entirely within the old Bottom Ash Disposal Area. The program will include testing of the quality and quantity of leachate generated in a fully lined five-acre cell, disposal of unmarketable, physically stabilized solid wastes in several adjacent unlined 10-acre cells, and an extensive groundwater monitoring program. Should groundwater criteria be exceeded, appropriate mitigative measures (i.e., cell dewatering and/or closure) would be undertaken to prevent contamination. USEPA will review the results of the first five years of test program data prior to approval of any other disposal areas as part of the required final long-term solid waste disposal plan submitted by JEA. USEPA will require that appropriate means be taken by JEA to protect groundwater resources based on this review. The overall program will ensure protection of valuable groundwater resources in the vicinity of SJRPP.

Plant Orientations

Two major alternative orientations for the plant rail loop were considered. Both were determined to impact wetlands on the site, but the north-south orientation was selected over the east-west orientation due to its relatively smaller degree of impact.

4. Alternatives to the Proposed Project

Section 1502.4 of NEPA requires that all reasonable alternatives to the proposed action be considered in the EIS process. The FPSC evaluated several means of achieving oil savings in its certification of the need for the project. Other reasonable alternatives involving combinations of various cost-effective oil displacement technologies also exist. Independent engineering, economic, and environmental studies were conducted to identify, develop, and evaluate alternatives which meet the basic economic goals on which the SJRPP was justified. A major difference between the alternatives developed for the Draft SAR/EIS and the proposed project is that they do not in all cases provide additional capacity, and none of them provides additional capacity equal to that provided by the SJRPP. Instead, the alternatives were selected based on their ability to meet the following objectives:

- The alternative would replace or save an amount of oil equivalent to or greater than the oil saved by the proposed project;
- The alternative must replace an amount of oil for each utility (JEA and FP&L) equivalent to the oil displaced by the proposed coal-fired power plant;
- The alternative must not result in any loss of capacity to either utility; and
- The alternative must be implementable within the proposed time frame of the SJRPP project (1987).

Based on these criteria, the following four alternative power systems plus the No Action Alternative were developed for evaluation in the Draft SAR/EIS.

Alternative 1

Alternative 1 consists of constructing refuse-fired power plants in Duval, Brevard, Seminole, Sarasota, and Manatee Counties, conversion of JEA's Northside Units 1 and 3 from oil-burning to a coal-oil mixture, utility sponsored installation of residential solar water heaters in the JEA and FP&L service areas, purchase by JEA and FP&L of a portion of Georgia Power's Vogtle Nuclear Plant, and construction of 150 miles of transmission line from Georgia to Florida. This alternative would result in oil savings of 5.4 million barrels per year by FP&L and 5.9 million barrels per year by JEA. It would increase the capacity of the FP&L system by 550 MW and the JEA system by 228 MW.

Alternative 2

Alternative 2 consists of conversion of FP&L's Sanford Units 4 and 5 from burning oil to coal-firing, purchase by JEA and FP&L of a portion of Georgia Power's Vogtle Nuclear Plant, and construction of 150 miles of transmission line. In this alternative, JEA would rely solely on power purchase for oil displacement. This alternative would result in oil savings of 7.2 million barrels per year by FP&L and 5.9 million barrels per year by JEA. It would also increase the capacity of the JEA system by 550 MW and would not change the capacity of the FP&L system.

Alternative 3

Alternative 3 consists of conversion of FP&L's Sanford Units 4 and 5 from burning oil to coal-firing, purchase of a portion of Georgia Power's Vogtle Nuclear Plant, and construction of a 280 MW coal-fired power plant by JEA at the St. Johns River Power Park site. This alternative would result in oil savings of 7.2 million barrels per year by FP&L and 5.9 million barrels per year by JEA. It would increase the capacity of the JEA system by 550 MW and would not change the capacity of the FP&L system.

Alternative 4

Alternative 4 consists of conversion of FP&L's Sanford Units 4 and 5 and JEA's Northside Unit 3 from burning oil to coal and purchase by JEA and FP&L of a portion of Georgia Power's Vogtle Nuclear Plant. This alternative would result in oil savings of 7.2 million barrels per year by FP&L and 5.9 million barrels per year by JEA. It would also increase the capacity of the JEA system by 72 MW and would not change the capacity of the FP&L system.

5. Summary and Comparison of the Major Environmental Impacts of the Proposed Project and the Alternatives

Impacts of the Proposed Project

Air Resources

The operation of the SJRPP was originally projected to result in a violation of the 24-hour Florida Ambient Air Quality Standard (FAAQS) for sulfur dioxide. This potential impact was identified through modeling performed by FDER and was shown to result primarily due to the cumulative emissions from the SJRPP, NGS, and the Kennedy and Southside Stations. The Conditions of Certification therefore include a requirement that the Southside facility be shut down under maximum load conditions at SJRPP and NGS. Air quality modeling has shown that this restriction will prevent any violation of the FAAQS. The SJRPP will meet all other applicable air quality standards.

The Clean Air Act (as amended, 1977) requires that each state develop a State Implementation Plan (SIP) to maintain ambient air quality standards. In developing these plans, states establish emission limits which are calculated to ensure that the standards are met. Chapter 17-2 of the Florida Administrative Code (FAC) provides the basis for determining if a proposed project meets the requirements of the State Implementation Plan for air quality. The proposed SJRPP will be in compliance with the provisions of Chapter 17-2, FAC, if it is constructed and operated as specified in the State Conditions of Certification (Appendix 6.2). These conditions include the requirement for shutting down the Southside plant when the NGS and SJRPP are under maximum load as described above.

Surface Water Resources

The proposed SJRPP will result in the discharge of trace elements, oil and grease, chlorine, and other oxidants (TRO) into the Blount Island Channel by way of the NGS discharge channel. Ambient concentrations of copper, cyanide, iron, mercury, silver, aluminum (maximum only), chlorine residuals, and oil and grease (maximum only) in the vicinity of the proposed project already exceed Florida Class III water quality criteria with varying degrees of frequency. The discharge from the SJRPP will increase the frequency and degree of these water quality criteria violations within the mixing zone and at the POD. Mathematical modeling by FDER has shown, however, that beyond the 31 acre mixing zone water quality will not change significantly over ambient conditions (whether the ambient conditions exceed the Class III standards or not). As a result, the State proposes to grant water quality variances for several parameters in the main NGS/SJRPP discharge (NPDES (discharge number 001). The request for a chlorine variance has been denied by the State. USEPA's position and that of the FDER on this issue is further discussed in the responses to the public comments (W-17).

Additional water quality impacts will occur as the result of the movement of trace elements (especially iron, copper, mercury, selenium, arsenic, and zinc) through the coal unloading facility's percolation pond into the Fulton-Dame Point Cutoff. Leachate from solid waste disposal areas will be controlled by institution of a five-year test program as previously described.

Groundwater

Groundwater underlying the SJRPP was originally predicted to be impacted by leachates from solid waste disposal areas, drawdown, and chloride intrusion. As a result of extensive review and analysis conducted during the preparation of the Draft SAR/EIS and Final EIS, however, appropriate means have been developed to adequately protect groundwater resources in the vicinity of the plant site.

Solid waste leachate seepage will be controlled by the previously described solid waste management plan. A groundwater monitoring program will be included as part of this plan. Should violations of groundwater criteria occur, mitigative measures will be taken immediately by JEA to correct the problem. These measures will primarily include dewatering and/or closure of the waste cells.

During construction some drawdown of the shallow aquifer system is expected during periods of average and maximum usage. Average usage by SJRPP has been shown to create a cone of depression with 15 feet of drawdown at the nearest site boundary and approximately 9 feet of drawdown at the nearest off-site well. Approximately 66 Floridan Aquifer wells could experience declines of 2 to 4 feet and approximately 137 wells could experience drawdowns of 1 to 2 feet. Under maximum usage conditions for a 24-hour period, it was shown that the cone of depression at the site boundary was 25 feet with a drawdown of 14 feet at the nearest off-site well. Approximately 50 wells could experience water level declines of greater than 1 foot and 31 wells could experience drawdowns of greater than 2 feet. Under either average or maximum pumping conditions, the flow of some artesian wells and the yield of some pumped wells in the immediate vicinity of the SJRPP would be reduced.

Any increased production from the Floridan Aquifer has the potential for inducing increased chloride concentrations within the Aquifer. Chloride concentrations in the Floridan Aquifer can generally be correlated with high rates of production, particularly from deeper zones. The proposed project could therefore contribute to the overall trend of long-term increases in chloride contamination of the Floridan Aquifer.

Aquatic and Terrestrial Biology

During construction, approximately 84 acres of valuable seasonally flooded wetlands and habitat for associated fauna will be eliminated. To help mitigate this loss, JEA will provide a fenced-off 200-foot buffer strip around all remaining wetlands on the site. This will include 65 acres of bottomland hardwood forest (no salt marsh will be affected anywhere on the main site, and JEA has decided not to disturb any of the salt marsh on Blount Island). As a result of negotiation with the US Fish and Wildlife Service during the course of completing the Final EIS, JEA has also agreed to expand the area to be fenced off. According to this plan, additional fences will be placed on the northwest corner of the site, and along the site boundaries on either side of Island Drive. As shown in Figure 3, the additional fences will effectively limit public access to both upland and wetland acres of the site. This will provide additional protection to both upland and wetland habitats.

Clearing of 364 acres of pine flatwoods will eliminate most remaining habitat suitable for gopher tortoises, gopher frogs, indigo snakes, and other species which depend on gopher tortoise burrows on the site. Construction activities and human presence in the area could temporarily disturb nesting or feeding activities of several threatened or endangered State and Federally listed birds which may occur in wetlands adjoining the site. These same species (as well as other animals) could also be affected by the discharges of treated sanitary and runoff wastewaters during construction into a headwater of Browns Creek marsh. Dredging activities in Mill Cove for transmission tower construction and near Blount Island will produce temporary increases in turbidity and increases in trace element levels in the water column. A formal Section 7 consultation conducted between USEPA and the US Fish and Wildlife Service has indicated, however, that the construction phase will not threaten the continued existence or disturb the critical habitat of any Federally listed species if suitable mitigative measures are employed. As a result of the public review process, several mitigative measures will be required by the US Army Corps of Engineers to mitigate dredging-related impacts. These will include limitation of dredging to late fall or winter and use of a large spoil disposal area (Quarantine Island) to allow for maximum settling time and detoxification. These measures are aimed at avoiding impact to the endangered Florida manatee, a marine mammal of particular concern to the US Fish and Wildlife Service.

During the operation phase, elevated levels of trace metals at the POD and in the mixing zone of the main discharge from the NGS/SJRPP will produce additional stress on aquatic life in the St. Johns River. Modeling by FDER has shown, however, that levels of trace metals at the edge of the mixing zone of the main discharge will be indistinguishable from ambient conditions in other parts of the River. Since the mixing zone is relatively small in relation to the entire River, the net effects on aquatic life were projected by FDER to be minimal outside of this area.

Leachates from solid waste areas will be controlled by the institution of the five-year solid waste disposal plan (and eventually a USEPA-approved long-term plan). No adverse impacts on aquatic life in adjacent marshes or the St. Johns River estuary are currently projected. However, seepage of trace elements from the percolation pond will produce added stress on aquatic life in the vicinity of the Blount Island coal unloading facility.

Salt emitted from the SJRPP cooling towers could have potential effects on the surrounding natural and man-made environments. USEPA has required that a cooling tower drift study be conducted in order to determine drift rates, ground level salt deposition rates, and biological impacts. Should a problem develop, mitigative measures will be required by USEPA (Condition U of the NPDES permit; Appendix 6.1).

The overall operation phase of the SJRPP is not projected to threaten the continued existence or critical habitat of any Federally listed threatened or endangered species. This conclusion was reached by the USFWS as a result of a formal Section 7 consultation with USEPA. Similarly, no adverse impacts on State listed species are projected to result from the operational phase of the SJRPP.

Sound Quality

Noise resulting from the normal construction activities associated with the project would increase noise levels by only 2 dB at the nearest receptor. The most severe noise impact would occur during steam blowout which would occur once or perhaps twice a year. The steam blowout event would be of short duration (approximately 3 minutes) and would be preceded by notification to area residents.

Cultural Resources

The proposed project will have an adverse effect on the St. Johns River Power Park Archaeological District, a property deemed eligible for listing on the National Register of Historic Places (Figure 6). Sites 9Du634 and 8Du669 may be eliminated as the result of the siting of the rail loop and runoff sediment control pond. Sites 8Du677 and 8Du671 may eventually be eliminated as a result of land modification activities related to the siting of a 90-acre solid waste disposal landfill (solid waste area A). Mitigation of this impact is required as a condition of the NPDES Permit.

Socioeconomic Conditions

Construction of the SJRPP will create a temporary influx of workers to the Jacksonville area. Additional public costs will be incurred as a result of the additional demands on various public services by the immigrant work force and their families. These additional costs will be temporary, however, and are expected to be moderate. The operation of the SJRPP will generate a

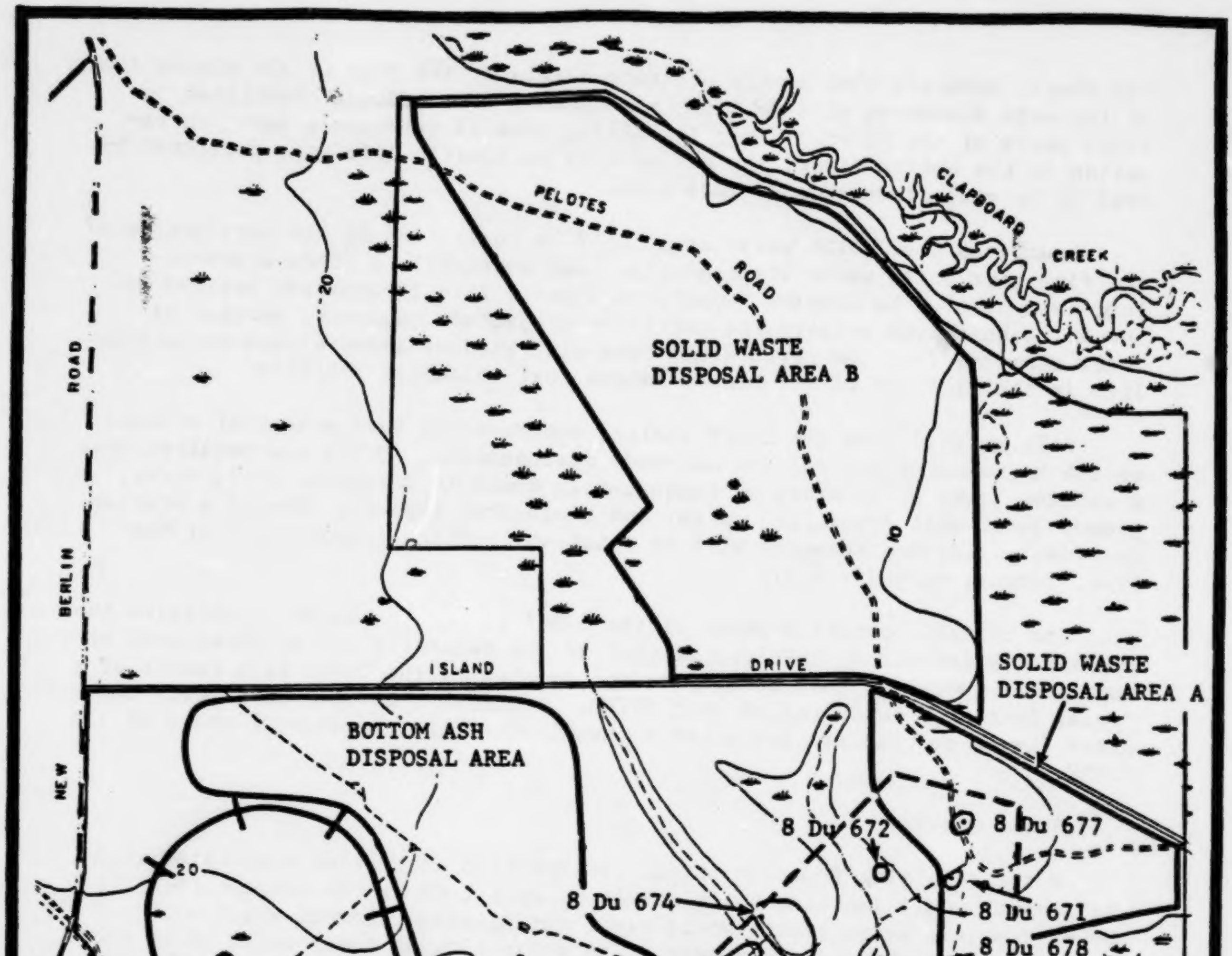

PELOTES ROAD
CLAPBOARD CREEK
SOLID WASTE DISPOSAL AREA B
20
10
NEW BERLIN ROAD
ISLAND DRIVE
SOLID WASTE DISPOSAL AREA A
BOTTOM ASH DISPOSAL AREA
8 Du 672
8 Du 677
8 Du 674
8 Du 671
8 Du 678
8 Du 676
RAIL LOOP
8 Du 670
8 Du 673
8 Du 675
8 Du 669
8 Du 634
SEDIMENTATION POND
MAP SOURCE:
1964 EASTPORT, FLORIDA
7.5 USGS QUADRANGLE
ARCHAEOLOGICAL SITE LOCATION MAP
CULTURAL RESOURCE RECONNAISSANCE
PROPOSED COAL FIRED POWER PLANT
SITE, DUVAL COUNTY, FLORIDA
St. Johns River Power Park Archaeological District — —
0
200
400
600
meters

Figure 6. Location of the St. Johns River Power Park Archaeological District, determined eligible for listing on the National Register of Historic Places.

relatively small influx of workers. Although this influx is more likely to locate permanently in the Jacksonville area, the public costs incurred will be minimal since they will be spread over a longer time period and will be offset by various tax revenues.

Land Use, Recreation, and Aesthetics

No adverse impacts on land use are projected for the main SJRPP site or the Blount Island coal unloading facility. Although a proposed auto racing facility could occupy a portion of the SJRPP site, licensing of the facility is not within USEPA's jurisdiction. If the facility were to be constructed, it would represent a conflicting land use, however. This issue would have to be considered by FDER as specified by the Florida Power Plant Siting Act. The greatest effects on land use will result from construction of the transmission lines. It is probable that the selected transmission line right-of-way (ROW) will cross limited areas of medium density residential development. These crossings could result in the displacement of a small number of residences. The preferred corridor also includes two recreational areas--a golf course and tennis courts. It may be possible to avoid these areas by altering tower designs. Most of the other land uses of the selected transmission line corridor would be compatible with existing patterns. The construction and operation of SJRPP will add tall cooling towers, a 640-foot exhaust stack, a coal pile, and 60-foot high solid waste disposal landfill cells to the existing vista of the area. The taller structures will be visible from residences along Heckscher Drive and New Berlin Road.

Transportation

Construction of the SJRPP will result in several impacts on transportation systems in the area of the plant. Increased traffic on Heckscher Drive and New Berlin Road will exceed the desired level of service for urban design conditions and traffic congestion will occur at the following intersections during rush hours: Interstate Highway 95 and Heckscher Drive; Main Street and Heckscher Drive; Main Street and New Berlin Road; Main Street and Eastport Road; and Heckscher Drive and New Berlin Road.

Adverse transportation impacts due to the operation of the SJRPP will result from coal trains entering and leaving the site. Traffic will experience delays when the unit trains cross Main Street, Eastport Road, and New Berlin Road. The impact will be the most severe when the trains cross these roads during rush hours.

Human Health Impacts

The operation of the SJRPP is not projected to result in violations of the FAAQS or NAAQS if the plant is operated according to the specifications listed in the FDER Conditions of Certification (Appendix 6.2). All other regulated air pollutants are predicted to be in compliance with the applicable standards. There could be a small increase in the concentration of some respirable trace elements in the Jacksonville area, but no increase in potential health risks is anticipated.

The St. Johns River occasionally has elevated concentrations of mercury, a pollutant which tends to magnify (concentrate) up the food chain in the edible portions of fishery products. A long term adverse impact on human health has not been shown but this is not conclusive. Anticipated mercury contributions of the SJRPP are quite small but represent a potential concern in the 31 acre mixing zone of the plant discharge.

Comparison of Alternatives

An economic analysis of the alternatives was conducted to determine whether they meet the economic objectives of the SJRPP. Based on this analysis, it was concluded that Alternatives 2, 3, and 4 are competitive with SJRPP on an oil displacement and cost savings basis. These alternatives, particularly Alternative 2, rely heavily on the purchase of relatively inexpensive power from Georgia Power's Vogtle Nuclear Plant. The Vogtle Plant has been steadily escalating in cost and may not, in the long run, be as economical as currently reported. Alternative 1 is prohibitively expensive for FP&L and for the utilities combined. None of the alternatives provide additional capacity equal to that provided by SJRPP. The cost of providing additional capacity at a later date was not factored into the analysis of the alternatives.

In the Draft SAR/EIS, the proposed project and the alternatives were evaluated and compared environmentally on a resource by resource basis. Within the limitations of the information available, the comparison was conducted equally. The obvious differences in the level of detail and the broad economic and environmental assumptions required to make comparisons among the alternatives prevented the identification of any one overall alternative as being clearly superior. Nonetheless, certain generalizations regarding the environmental impacts of the No Action Alternative, the proposed SJRPP project, and the four alternatives were made.

As expected, the No Action Alternative would result in the fewest adverse environmental impacts. In comparing the action alternatives, it was generally found that the greater the magnitude of the alternative, the greater the degree of both beneficial and adverse environmental impacts. Location was also found to be a major factor in determining the level of impacts. Based on its relative size, the SJRPP would generate a large overall level of beneficial economic impacts while also generating a large level of adverse impacts (e.g., land consumption, air quality degradation). Alternative 1, which includes small scale technologies, solar water heating systems, and refuse-fired power plants, would result in significant environmental benefits in many resource areas since these components encourage conservation and recycling. Similarly, Alternative 2 which includes large purchases of power from Georgia Power Company would result in reduced adverse environmental impacts in the northeast Florida area since the resource consumption and pollutant generation of Plant Vogtle were not considered in the analysis. The impacts of Plant Vogtle were assumed to occur regardless of whether JEA and FP&L purchase a portion of its power since the Plant is certified and under construction.

Location is a major factor in determining the relative potential for impacts of a power plant. Many of the adverse impacts of the proposed project which cannot be completely mitigated are a function of its location. The impact on wetlands and the exacerbation of existing water quality problems may not have occurred at other alternative sites. Based on the site selection study, however, the lack of availability of other sites and/or political opposition to their selection appeared to present delays that could not be economically tolerated by the City of Jacksonville. Therefore, a more readily available but more environmentally sensitive site was selected by JEA.

6. Mitigative Measures for the Proposed Project

Several measures to mitigate the potential impacts of the proposed project on the surrounding environment were identified during the environmental review process. Construction-related impacts on air resources will be mitigated by employing suitable fugitive dust controls and emission controls for the burning of brush and trees during clearing. Impacts of construction on water resources and aquatic life will be mitigated by implementation of a comprehensive erosion and sedimentation control plan and effective treatment of wastewater discharges. Construction-related impacts on wetlands will be mitigated by establishment of a fenced-off, 200-foot buffer zone around remaining wetlands on the site. Additional fencing will also be placed around the periphery of the site to further limit public access to both upland and wetland areas (Figure 3). This will allow these habitats to be disturbed less, thereby improving their value to wildlife. The feasibility of a gopher tortoise relocation program will be considered to mitigate impacts on this protected species which inhabits the main site. Because of the potential difficulties involved in such a program, close coordination with the State of Florida prior to its implementation is recommended. Construction impacts along the transmission line ROW will be minimized by adherence to Federal Power Commission guidelines.

Potential impacts on manatees in Mill Cove and Blount Island Channel due to dredging will be minimized by conditions placed on the Section 10/404 permit. Among these will be the requirement that dredging be conducted during late fall or winter months. Since this is the time of year when manatees are least active, there would be a lower probability of adverse impacts to occur due to increased turbidity or elevated levels of trace metals. Furthermore, the State has required that turbidity screens be employed during dredging and has set limits on allowable turbidity levels (Appendix 6.2, FDER Conditions of Certification). All dredge material will be disposed of in the Quarantine Island site. This area is an approved US Army Corps of Engineers site with more than enough capacity to store the dredge material. The large size of the storage area will allow for maximum settling time and detoxification of the dredged material.

Impacts on the designated St. Johns River Power Park Archaeological District will be mitigated by JEA in accordance with the Memorandum of Agreement (MOA) between the Advisory Council on Historic Preservation, the State Historic Preservation Officer, and USEPA (Appendix 6.4). No construction or construction-related activities are to occur within 200 meters of any identified archaeological site pending USEPA approval of the mitigation plan.

No herbicides will be used in the initial clearing operations of transmission line ROW's. The use of herbicides for maintenance will be minimized. Herbicides will be used in strict accordance with USEPA-approved products and procedures. During ROW clearing operations and transmission line tower construction, an undisturbed buffer 7.6 meters in width will be maintained adjacent to all streams, rivers, or lakes. Trees within this zone will be selectively topped without disturbance to their root mats.

Operation-related impacts on surface waters will be controlled to the best extent practicable by use of wastewater treatment facilities. A bioassay program will be required as a condition to the NPDES permit (Appendix 6.1) to determine the toxicity of the main NGS/SJRPP discharge. This will determine if more stringent permit limitations are necessary to protect aquatic organisms. Air emissions will be controlled with electrostatic precipitators, FGD systems, and by boiler design. Fugitive coal dust will be controlled with water spray dust suppression systems, enclosed conveyors, and fabric filters. Cooling tower drift will be controlled to a level of 0.002% of total recirculating water volume although controls are available to limit drift to 0.0005%. An 18-month drift study will be required as a condition of the NPDES permit in order to determine potential salt drift impacts on surrounding natural areas and man-made communities. A site erosion and sedimentation control plan will help to minimize degradation of surface water quality in the vicinity of the SJRPP. All solid wastes generated during the first five years of the plant's life will be disposed of in a specially designated 100-acre area immediately adjacent to the rail loop (the area previously identified as the bottom ash disposal area). This area is located at or above the 20-foot elevation. USEPA will require a five-year test plan to determine potential impacts on surface and groundwater resources from solid waste leachate. USEPA must also approve all future solid waste disposal areas on the SJRPP site pending the results of the initial five-year program and review of JEA's long-term solid waste management plan. The most significant mitigation relative to solid waste management is the marketing of the FGD sludge as gypsum and combustion ash as construction material. This would potentially eliminate most long-term solid waste disposal problems for JEA.

7. Unresolved Issues

JEA and FP&L have resolved some of the outstanding environmental issues identified in the SAR/EIS associated with construction and operation of the SJRPP. These include issues relating to air quality, solid waste disposal, wetlands, and threatened and endangered species. The specific mode for disposal of potentially hazardous low volume waste has not been determined, and cannot until the wastes are tested after operation of the first unit. JEA has stated that all hazardous low volume wastes generated will be identified and disposed of off-site at a RCRA permitted landfill and that such wastes would not be permanently stored on-site.

The long term water quality and environmental effects of elevated mercury levels in the combined mixing zone of the NGS and SJRPP are not fully known. It appears likely that the concentrations of mercury actually expected in the mixing zone will be less than those used in the analysis of worst case conditions in the Draft EIS. Also, based on the fish tissue data presently available, no known existing health risks are associated with elevated mercury levels in the St. Johns River. However, this assessment of the situation cannot be regarded as conclusive. The actual long term effects of persistent elevated levels of mercury in the mixing zone on the quality of the fisheries would have to be further studied to make more definitive statements.

To resolve the mercury concern USEPA will take three actions. The first is to expand the data base on present concentrations of the pollutant in fish and shellfish. Commonly taken species are being collected from the area of the proposed plant and analyzed for mercury content. These data will be reported in the Record of Decision which will be distributed regarding this project. If, as expected the fish flesh data verify the limited existing data, no significant impact is expected on the St. Johns River fishery from the SJRPP mercury discharge. If unexpected high levels are indicated, USEPA's decisions on NPDES Permit issuance and required approval of FDER's proposed water quality standards variance to JEA could be affected. The second action is to require the JEA to annually reevaluate the technology available to control mercury discharge from the flue gas desulfurization system blowdown, the major mercury source, and to provide for segregation of that wastestream if greater treatment is necessary. In addition, JEA will be required to investigate bioaccumulation of mercury in the mixing zone so that any uptake attributable to the new plant can be closely monitored.

8. USEPA's Environmentally Preferred Alternative and Recommended Action

It must be noted that based on the initial findings of the Draft SAR/EIS, various alternatives to the proposed project are available which appear to be comparable to the SJRPP from an economic and an environmental standpoint. Since these alternatives meet the oil back-out goals of the proposed project, it can be argued that one of these alternatives could be implemented. The selection of one of the alternatives would defer a decision on the SJRPP for approximately three to four years when possibly the need for the project could be better predicted and mitigation of impacts might be greater through improved technology. The major alternative components, purchase of part of the Vogtle Nuclear Plant and conversion of the oil-fired Sanford Units 4 and 5 to coal-firing, are not necessarily precluded, however, by proceeding with SJRPP at this time. In fact, conversion of power plants from oil to coal is arguably facilitated by construction of additional capacity at SJRPP. JEA and FP&L have indicated that careful analysis of these options is underway and if found to be advantageous will be pursued.

Nevertheless, SJRPP has been shown to be an economically advantageous project for Jacksonville, its citizens, and FP&L and its customers. Not only does it displace oil, but it also provides additional generating capacity for the utilities which would have to be provided at a later time as system demand rises and older units are phased out of use. USEPA finds the proposed project (SJRPP) environmentally acceptable with the proposed NPDES Permit Conditions. However, USEPA has determined that the following features of the SJRPP would be environmentally preferable to those selected by the applicant:

- Sulfur dioxide emission control consisting of a lime spray dryer or a lime/limestone FGD scrubbing system with by-product resource recovery;
- Bottom ash and fly ash management consisting of dry handling and sale as a by-product;
- On-site disposal of unmarketable FGD sludge, bottom ash, and fly ash in landfill cells lined with a material with a permeability no less than 1×10^{-7} cm/sec;

- Coal delivery over land by rail rather than from the proposed Blount Island coal unloading facility; and
- Natural draft cooling towers with a drift elimination system that uses 0.0005% of the total recirculating volume flow rather than 0.002%.

These systems are preferred but not required. JEA and FP&L have demonstrated that other systems are environmentally compatible and can be approved. USEPA regulations provide 30 days public review of this Final EIS and the Draft NPDES Permit (Appendix 6.1) before USEPA may issue the permit. A Record of Decision will be circulated at the time of the permit issuance. In addition, USEPA must approve or disapprove any variance to water quality standards granted for the project by the State of Florida.

9. FDER's Recommendations

FDER recommends that the SJRPP be certified by the Governor and Cabinet. This recommendation is based on the premise that all required Conditions of Certification (Appendix 6.2) are met.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

June 11, 1982

TO ALL INTERESTED GOVERNMENTAL AGENCIES, PUBLIC GROUPS AND CITIZENS:

The Final Environmental Impact Statement on the proposed Jacksonville Electric Authority-St. Johns River Power Park at Jacksonville, Florida is provided for your review. It has been prepared according to Section 102(2)(c) of the National Environmental Policy Act and applicable EPA regulations. The Final EIS may be reviewed at the following locations: Jacksonville Public Library, University of North Florida Library, Clay County Library, University of North Florida County Branch Library in Orange Park, St. Johns County Library in St. Augustine and the Nassau County Branch Library in Fernandina Beach.

EPA has not reprinted in the Final EIS the material contained in the jointly prepared State Analysis Report/Draft Environmental Impact Statement, which was made available to the public in October 1981. Therefore, both documents should be retained for a complete evaluation of the project.

Written comments on the Final EIS should be forwarded to:

F. Theodore Bisterfeld, Project Officer
Environmental Assessment Branch
Office of Policy and Management
Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, Georgia 30365
404/881-3776

A 30-day review of the Final EIS will precede a decision on issuance of the NPDES Permit. The comment period will end July 12, 1982. A Record of Decision will be circulated following the close of the comment period.

Additional copies of the Final EIS are available from EPA's Environmental Assessment Branch at the address given above.

1.0 PREFACE

In October of 1981, the US Environmental Protection Agency (USEPA) published and distributed a Florida State Analysis Report (SAR)/Environmental Impact Statement (EIS) on the St. Johns River Power Park, proposed by the Jacksonville Electric Authority and Florida Power and Light Company. The joint document was written to satisfy both the requirements of USEPA under the National Environmental Policy Act (NEPA) and of the Florida Department of Environmental Regulation under the Florida Power Plant Siting Act. Although the Draft SAR/EIS was a complete document, much of the detailed technical information and supporting data were presented in a supplemental Technical Reference Document. The Draft SAR/EIS was distributed for review to appropriate Federal, State, and local agencies and to interested individuals. The Technical Reference Document was made available for review at a number of locations and was distributed on a limited basis.

This Final Environmental Impact Statement has been prepared to conform with the Council on Environmental Quality regulations (40 CFR Part 6) for implementing NEPA. The essence of the NEPA decision process is contained in the Executive Summary for the Final EIS. The Executive Summary describes the existing problem requiring a decision, available alternatives and their associated impacts, major concerns and issues, and USEPA's conclusions and decision.

In an effort to avoid excessive paperwork and costly preparation, the text of the Draft SAR/EIS has not been reprinted in the Final EIS. The supporting information furnished in the Draft SAR/EIS and its Technical Reference Document are incorporated herein by reference. Both documents were widely distributed for public and agency review.

Chapter 2.0 includes corrections to the text of the Draft SAR/EIS based on the results of the public review process. Chapter 3.0 contains a description of the public participation program conducted for the Draft SAR/EIS. Included in Chapter 3.0 are copies of written communications submitted to USEPA in response to the Draft SAR/EIS followed by USEPA's responses to each individual comment. These are followed by a summary of the issues raised at the public hearing for the Draft SAR/EIS and a point-by-point response to the hearing comments. A summary of each of the comments raised is provided due to the length of the public hearing testimony. Sections 3.4 and 3.5 present comments made on the Draft NPDES permit by JEA and USEPA's responses.

Chapter 4.0 lists the agencies and groups to whom the Final EIS will be sent for review and comment and Chapter 5.0 identifies the individuals involved in its preparation. Chapter 6.0 is an Appendix to the Final EIS containing the NPDES permit for the St. Johns River Power Park, the FDER Conditions of Certification, the addendum to the original US Fish and Wildlife Service Section 7 consultation results, and other information.

2.0 ERRATA

This section provides necessary corrections to substantive errors and omissions in the Draft SAR/EIS (Section 2.1) and the Technical Reference Document (Section 2.2). Included as Appendix 6.5 to the Final EIS are pages 4-137 and 4-138 which were omitted from some copies of the Draft SAR/EIS during printing.

2.1 ERRATA FOR THE DRAFT SAR/EIS

Table 1 lists corrections made concerning the Florida legal status of species reported on Tables 1.1-4, 1.2-1 of the Technical Reference Document and Tables, 3.5-4, and 3.5-5 of the Draft SAR/EIS titled "Rare, threatened, and endangered species which occur or could potentially occur in the vicinity of the NGS and SJRPP and Sanford sites." The following additional corrections in the Draft SAR/EIS should also be made on the pages indicated:

Page	Paragraph	Line	Correction
2-45	Column 3	2	Add footnote[1] to column titled "Annual O&M[1]." Footnote: [1]Total Annual Cost (Annual O&M including initial debt retirement).
2-45	Column 4	2	Add footnote[2] to column titled "Equiv. Annual[2]." Footnote: [2]Capitalized annual cost.
3-42	5	7	Change Florida status of the gopher tortoise from "threatened" to "species of special concern."
3-48	-	3	Change Florida status of the wood stork from "threatened" to "endangered."
3-48	-	6	Change Florida status of the red-cockaded woodpecker from "endangered" to "threatened" and "endangered" according to the Federal government.
4-51	2	6-19	Delete portion of paragraph reading "...Under average...less than 24 hours)." and replace with the following: Under conditions of average long-term production of 3,600 gallons per minute from the two wells at the plant site, nine wells could potentially be affected by drawdown of greater than 4 feet. Of those nine wells, five are associated with the Northside Generating Station, one is at the North Landfill, one is the Capital Concrete well (D-1255, the nearest well to the site), and only two (D-402 and D-737) would appear to be associated with private homes. An additional six inventoried wells and 60 potential Floridan wells associated

F

Table 1. Corrections to be made concerning the status of 7 species of State concern listed in Tables 1.1-4, 1.2-1 of the Technical Reference Document and 3.5-4, and 3.5-5 of the Draft SAR/EIS.

Common Name	Status given in original Table of SAR/EIS	Correct State Status
Gopher tortoise	Threatened	Species of Special Concer
Florida gopher frog	Threatened	Species of Special Concer
Eastern indigo snake	Threatened	Species of Special Concer
West Indian manatee	Threatened	Species of Special Concer
Arctic peregrine falcon	Endangered	No State Status
Red-cockaded woodpecker	Endangered	Threatened
Osprey	Threatened	Not Currently Listed
Sherman's fox squirrel	Threatened	Species of Special Concer

Page	Paragraph	Line	Correction
			with private homes could experience drawdowns in the range of 2 to 4 feet, and 17 inventoried wells and 120 potential wells associated with private homes could experience drawdowns between 1 and 2 feet. Under conditions of maximum production of 5,400 gallons per minute for a short period of time (assumed to be no more than 24 hours), nine inventoried wells and seven potential wells associated with private homes might experience drawdowns greater than 6 feet. An additional 41 inventoried wells and 400 potential wells associated with private homes could experience drawdowns of greater than one foot.
4-73	2	2	Omit word "rare" from sentence
4-73	5	1	Delete line 1, and replace with "Migratory birds which pass...".
4-73	7	1-2	Delete Florida scrub jays since it is not probable that they occur on the site. (Florida scrub jays are highly sedentary and there is no suitable habitat on the main site).
4-77			For Table 4.7-2 in column labelled "Estimated Concentration at Edge of Mixing Zone," under avg. column for cyanide, iron, and aluminum, change the letter l to L; also change footnote l to L.
4-81	4	3	Change 0.9 $mg/m^2/hr$ to 0.5 $mg/m^2/hr$.

2.2 ERRATA FOR THE TECHNICAL REFERENCE DOCUMENT

The following corrections in the Draft Document should be made on the pages indicated:

0-20	2	2	Change Florida status of the gopher tortoise from "threatened" to "species of special concern."
0-20	3	10	Change Florida status of the gopher frog from "threatened" to "species of special concern."
0-20	4	3	Change Florida status of the Eastern indigo snake from "species of special concern" to "threatened."

Page	Paragraph	Line	Correction
0-21	3	5	Delete Christmas count data since they are based on observations of eastern kestrels, a separate subspecies of the American kestrel.
0-21	4	1-2	The osprey is no longer recognized by the Florida GFWFC as a threatened species.
0-22	3	2	Change Florida status of the red-cockaded woodpecker from "endangered" to "threatened."
0-23	1	3	Change the Florida status of the West Indian manatee from "threatened" to "endangered."
0-29	6	7	Delete "rare" and replace with "species of special concern."
0-31	4	4	Delete Florida scrub jay.
0-32	2	1-2	Delete line 1, and replace with "Migratory birds which pass...".
0-32	3	1	Delete Florida scrub jays since it is not probable that they occur on or near the site.
0-33	1	4	Following "threatened" insert (Federal).
0-36	4	9	Delete "rare" and replace with species of concern.
0-42			For Table 2.2-1 in column labelled "Estimated Concentration at Edge of Mixing Zone," under avg. column for cyanide, iron, and aluminum, change letter l to L; also change footnote l to L.

3.0 PUBLIC PARTICIPATION

The Draft Florida State Analysis Report/Environmental Impact Statement was published in October 1981 and made available to the Council on Environmental Quality and the public. The Draft SAR/EIS was provided to numerous Federal, State, and local agencies as well as concerned individuals, interest groups, and public officials. Notice of a joint public hearing held by the US Environmental Protection Agency in conjunction with the Florida Department of Environmental Regulation on the Draft SAR/EIS was published 29 October 1981. The public hearing was held 1 December 1981 and was attended by 114 participants. The public hearing transcript is summarized by issue and speaker in this chapter.

The comment period on the Draft SAR/EIS remained open through 14 December 1981. Section 3.1 includes the letters which were received during the comment period. The designations in the margins of the letters (numbered W-1 through W-120) identify those specific comments for which responses have been developed by USEPA in Section 3.2. Section 3.3 summarizes each issue raised at the public hearing as well as appropriate responses by USEPA. The designations P-1 through P-49 identify the comments. Sections 3.4 and 3.5 present comments on the draft NPDES permit made by JEA and responses by USEPA to certain of these comments.

3.1 WRITTEN COMMENTS

This section presents the written comments on the Draft SAR/EIS which were made during the public review period. The comment letters are listed sequentially according to the dates that they were received by USEPA. Each comment has been assigned an identification number (W-1 through W-120). Immediately following the letters (Section 3.2), USEPA's responses to each numbered comment are presented. Table 2 provides an index of each comment and identifies the pages on which responses by USEPA are listed. Table 3 provides an index of comments by subject or resource area.

Table 2. List of persons and/or organizations who provided written comments on the Draft SAR/EIS.

Person or Agency	Comment		Response	
	Number	Page	Number	Page
Thomas D. Sims Department of the Air Force	W-1	10	W-1	63
C.L. Irwin Florida Department of Transportation	W-2	11	W-2	63
D.T. Van Liere Offshore Power Systems	W-3 through W-7	14-15	W-3 through 7	63
Glenn C. Woodard Jr. Federal Emergency Management Agency	W-8, W-9	16	W-8, W-9	64,67
Robert D. Raisch US Forest Service	W-10 through W-15	17	W-10 through W-15	67,68
Barney L. Capehart Sierra Club	W-16	19-21	W-16	68-71
Horace Black Heckscher Drive Fish Camp, Marina and Business Association	W-17	23	W-17	71-73
George L. Reinert Florida Department of Agriculture & Consumer Services	W-18 through W-20	24	W-18 through 20	74
Charles N. Straub US Department of Housing and Urban Development	W-21, W-22	26	W-21, W-22	74
Donald J. Hankla US Department of the Interior	W-23 through W-27	27-30	W-23 through W-27	74-76

Table 2. List of persons and/or organizations who provided written comments on the Draft SAR/EIS (continued).

Person or Agency	Comment Number	Comment Page	Response Number	Response Page
Sherrard Coleman Foster Defenders of Wildlife	W-28, W-29	31-36	W-28, W-29	76-77
Frank S. Lisella, Ph.D. Department of Health & Human Services	W-30 through W-34	37-38	W-30 through W-34	77-80
Mat Roland Mat Roland Seafood Company	W-35	39-40	W-35	80
Stella D. Andrews Sea Oats Garden Circle	W-36 through W-41	41-43	W-36 through W-41	81
Lee Pelej	W-42	44	W-42	81
Roy L. Beach Law Offices of George W. Kent, Jr.	W-43 through W-47	45-50	W-43 through W-47	81-82
Bruce Blanchard US Department of the Interior	W-48 through W-58	51-54	W-48 through W-58	83-88
William R. Fryan Florida Lung Association	W-59 through W-64	55	W-59 through W-64	88
Mrs. Shirley Rogers	W-65 through W-76	56	W-65 through W-76	88-91
Robin Leigh	W-77 through W-119	57-62	W-77 through W-119	91-101
Royce Lyles JEA	W-120 through W-147	133-148	W-120 through W-147	149-152

Table 3. Cross references for issues and written comments on the Draft SAR/EIS submitted to USEPA during the public review process. Written comments made on major issues are listed under each major issue category.

Air Quality

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Terrestrial Ecology

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Wetlands Impacts

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Alternatives to SJRPP - $

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Surface Water Quality

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DEPARTMENT OF DEFENSE
UNITED STATES OF AMERICA

DEPARTMENT OF THE AIR FORCE
REGIONAL CIVIL ENGINEER, EASTERN REGION (HQ AFESC)
526 TITLE BUILDING, 30 PRYOR STREET, S.W.
ATLANTA, GEORGIA 30303

REPLY TO ATTN OF: ROV2

27 October 1981

SUBJECT: Draft Environmental Impact Statement (DEIS), State Analysis Report, Jacksonville Electric Authority, St. Johns River Power Park (NPDES FL0033869)

TO: U. S. Environmental Protection Agency
Region IV
Attn: Mr. John E. Hagan, III, P. E.
Chief, EIS Branch
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Development of the subject project will not adversely affect Air Force operations in Florida. Thank you for the opportuntiy to review this DEIS. Our point of contact is Mr. Winfred G. Dodson, commercial telephone number 221-6821/6776. W-1

THOMAS D. SIMS
Chief
Environmental Planning Division

Cy to: USAF/LEEV

ENVIRONMENTAL IMPACT STATEMENT BRANCH
RECEIVED
OCT 30 1981
REGION IV - EPA

Florida Department of Transportation

Haydon Burns Building 605 Suwannee Street Tallahassee Florida 32301 Telephone (904) 488-8541

BOB GRAHAM
GOVERNOR

JACOB D. VARN
SECRETARY

November 2, 1981

Mr. F. T. Bisterfeld
EIS Project Officer
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N. E.
Atlanta, Georgia 30365

Dear Mr. Bisterfeld:

Subject: Florida Power Plant Siting
Application No. PA 81-13

The following comments are issued pursuant to review of the subject document.

There should be close coordination with the Lake City District Department of Transportation Office relative to the increase in traffic and the congestion predicted due to constructing this plant. Any modifications to the transportation system proposed by the Department of Transportation should be given consideration as your plant construction progresses. Alternate rail crossing designs should be considered in lieu of at-grade crossings to alleviate delays predicted during rush hours. W-2

We appreciate the opportunity to comment.

Sincerely,

C. L. Irwin

C. L. Irwin, Administrator
Environmental Impact Review

CLI/mnb

cc: Mr. W. W. Page

ffshore Power Systems

November 16, 1981

Mr. Ted Bisterfeld
EIS Branch
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Subject: Offshore Power Systems Statement for the Record of Public Hearing on St. Johns River Power Park of December 1, 1981

Dear Mr. Bisterfeld:

In accordance with paragraphs 4, 5 and 7 of the Notice of Certification Hearing on an Application to Construct and Operate an Electrical Power Plant on a site to be located near Jacksonville, Florida as it appreared in the October 31, 1981 Times-Union and Jacksonville Journal, enclosed is a Statement from Offshore Power Systems to be considered as comments and/or a petition to the hearing officer.

OPS solicits your consideration of the noted serious impacts upon it in your preparation of the final Environmental Impact Statement and requests to be kept apprised of future hearings, releases, or other developments on this certification action.

I am mailing a copy of the same Statement to Mr. Chris H. Bentley of the Division of Administrative Hearings for his consideration in the certification deliberations and to Mr. Hamilton S. Oven, Jr. of DER for his consideration in preparing the final SAR.

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Please contact the undersigned or Mr. H. H. Fawcett, Jr. if you require additional information on this matter which is of the gravest concern to OPS.

Very truly yours,

D. T. Van Liere
Director of Operations

DVL:pac

Enclosure

cc: Mr. A. R. Collier, President, OPS
Mr. W. J. Staten, Vice President, Administration, OPS
Mr. J. R. Mackroth, Managing Director, JPA

STATEMENT FOR THE RECORD

December 1, 1981, Public Hearing by the State Division of Administrative Hearings, EPA, and the State Department of Environmental Regulation on the St. Johns River Power Park Certification

Offshore Power Systems (OPS) has constructed a major manufacturing facility on the eastern half of Blount Island, Jacksonville, Florida, for the purpose of manufacturing floating nuclear power plants. The OPS facilities are contiguous to the site of the proposed St. Johns River Power Park coal unloading facilities on Blount Island.

OPS does not take a position for or against the proposed coal fired power plants, however, there are several serious impacts to OPS brought about by their construction with most impacts having to do with the coal handling facility's location on Blount Island. The one most severe impact will not be acceptable and that is the multiple blockage of the sole entrance to the OPS manufacturing facility by the coal shuttle train rail loop.

It should be noted that the only means of vehicular access to the OPS manufacturing facility and the other activities on Blount Island is via a two-lane vehicular bridge across the St. Johns River. The bridge connects on the mainland with Hecksher Drive (State Road 105) which is a two-lane paved arterial between the built-up areas of Jacksonville to the west and Ft. George to the east. Approximately 90 percent of the Blount Island traffic arrives from or departs for the west.

The sketches in the Certification Application and the draft EIS/SAR show a planned rail loop from the Blount Island coal unloading facility to the Power Park which crosses Heckscher Drive to the west of the vehicular bridge and the main access road to the OPS manufacturing facility in three places. Use of the railroad track for coal shuttle trains as currently proposed would, therefore, block or severely reduce access and egress to and from the only bridge over the St. Johns River to Offshore Power Systems' manufacturing facility for: (1) personnel going to and from the facility; (2) heavy truck transport of product materials and equipment, and (3) emergency vehicles in the event of an accident. This blockage would occur both when empty cars were coming to be filled and when full coal cars were returning to the power plant. 2-1

Discussions have indicated that the Jacksonville Electric Authority is investigating alternatives to the use of a shuttle train to transport coal from the Blount Island coal unloading facility. There have been, however, no indications that a final decision on the transport method has been reached.

Because a coal shuttle train loop on Blount Island will: (1) block or severely restrict access to our manufacturing facility; (2) have to be constructed partially on our property; and, (3) cause blockage of Heckscher Drive from the west and access to the only bridge across the St. Johns River leading to Blount Island, Offshore Power Systems request that, as a condition to siting certification approval, you require the Jacksonville Elctric Authority to design and construct a method other than a coal shuttle train for transporting coal from the Blount Island unloading facility to the St. Johns River Power Park.

OPS submitted a Statement for the Record after the April 9, 1981 public hearings on this project. Some of the several concerns expressed in that statement will no doubt be mitigated by the various permit conditions as indicated in the Draft EIS/SAR. It appears that reasonable solutions to remaining serious impacts that would be caused by the construction on Blount Island could be found through negotiation and cooperation between JEA and OPS. JEA should be required to resolve these points with OPS before authorization to proceed (ATP) is granted.

These remaining points may be summarized as follows:

1. Railroad Service to OPS Facilities - The OPS manufacturing operations on Blount Island will be served by a single track extension to the existing railroad trackage now terminated near the OPS property line at the south side of the island. This trackage will serve the major manufacturing areas and a central warehouse complex on OPS property. All OPS rail traffic will transit JPA property on shared right-of-way and will be merged with existing JPA Terminal rail traffic to share the single-track railroad bridge access to Blount Island. The proposed St. Johns River Power Park coal shuttle operations, apparently, will use the same single track railroad bridge to the mainland. This will impede the smooth flow of all other rail traffic on and off Blount Island. Alternate means of coal transport would eliminate this conflict.

2. New Railroad Trackage on Blount Island - Sketches accompanying the permit applications indicate that the easterly coal shuttle railroad trackage will be constructed partially on a drainage and utility easement held by OPS on JPA property; and partially on wholly owned OPS property. Construction of trackage on the OPS drainage easement must not impede the free drainage of OPS property nor interfere with construction by OPS of required utilities and access trackage within the easement.

A portion of the easterly coal shuttle trackage is also shown to be constructed on the easterly side slope of an elevated dike on JPA property which borders wet lands and a marsh area on OPS property. This segment of trackage, if it is built, must be constructed in a manner to prevent erosion damage or siltation on OPS property. Again, an alternate transport system would eliminate the concern.

3. Routing of Transmission Corridor Across Blount Island - Alignment of the proposed transmission corridor north of Blount Island with the continuation of the corridor across Mill Cove south of Blount Island, as shown on sketches in the permit application, suggests that the route across Blount Island will be almost wholly on OPS property. This routing should be reviewed with OPS prior to further consideration to assure compatibility with OPS manufacturing operations and future land use.

4. Air Quality Considerations - The St. Johns River Power Park and its proposed coal unloading facility on Blount Island are in an air quality area shared with the OPS manufacturing facility and JPA terminal operations. The coal unloading operations are extremely dust inducing and will be in competition with the necessary open air metal blasting operations of OPS for utilization of any available PSD increment in total suspended particulates. Stringent dust control measures must be applied to the coal unloading, storage, and transfer operations to prevent impairment of the OPS ability to obtain any air pollution permits necessary for manufacturing.

F

Federal Emergency Management Agency
Region IV 1375 Peachtree Street, NE Atlanta, Georgia 30309

November 17, 1981

Mr. John E. Hagan III, Chief
EIS Branch
U. S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Re: NPDES # FL0033869

Dear Mr. Hagan:

Upon review of the Environmental Impact Statement, Jacksonville Electric Authority, St. Johns River Power Park (Public Notice No. PH81FL196), we have the following comments with regards to Executive Order 11988.

1. *All structures should be located outside of the 100-year floodplain, or 500-year floodplain if a critical action is involved.* W-8

If Number (1) is determined to be impracticable then,

2. *Any insurable structures must be elevated or flood-proofed (if nonresidential) to elevation 7.0' MSL, the stillwater elevation of the 100-year storm. This is a local government requirement as a part of their floodplain management ordinance. We recommend that even a higher elevation be used (8.0' MSL) based on a recent, but unpublished restudy.* W-9

We have enclosed a copy of the Flood Insurance Rate Map for this area. We thank you for this opportunity to comment.

Sincerely yours,

Glenn C. Woodard, Jr.
Director
Insurance and Mitigation Division

Enclosure

REGION IV - EPA

F

United States Department of Agriculture
Forest Service
Southeastern Area
1720 Peachtree Road, NW
Atlanta, Georgia 30367

Reply to 1950 (P&PD)

Date November 20, 1981

Mr. F. Theodore Bisterfeld
EIS Project Officer
Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Dear Mr. Bisterfeld:

We have reviewed the draft environmental impact statement on the Jacksonville Electric Authority, St. Johns River Power Park and have the following comments.

In the discussion of the construction and maintenance of transmission corridors, we suggest that indications should be made on whether and what types of herbicides will be used and, if so, should assess their effects and mitigation. Mitigation of impacts from fuel, oil and toxic chemical spills should also be addressed. W-10

Since there is forested land involved in the various alternatives, we suggest the following information be obtained for inclusion in the final EIS.

1. The approximate acreage, by forest type, within the boundaries of the project. W-11

2. The approximate acreage of prime timber land involved. (Prime timber land is defined as that land capable of producing a minimum of 85 cubic feet of timber per acre per year.) W-12

3. The approximate yield of timber, per year, which could be expected to be produced if the commercial forest land were managed intensively and not destroyed by the project. W-13

4. The expected long term effects (loss of wood and wood products) and the effects on the local economy from committing commercial forest lands to the project. W-14

5. The current stumpage value for each timber species in the major commercial forest types and the total value of wood products lost as the result of the project. W-15

If the above information is presented, the reviewer will be able to determine the trade-offs in timber volumes and wood products lost and can

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formulate the project's impact on the forest and socioeconomic environment. We would suggest that you contact the Florida Division of Forestry, John Bethea, Director, Collins Building, Tallahassee, Florida 32301, for forest inventory and evaluation information.

We appreciate the opportunity to review the draft EIS and look forward to receiving a copy of the final EIS when it is published.

Sincerely,

ROBERT D. RAISCH
Area Director

SIERRA CLUB
FLORIDA CHAPTER

November 30, 1981

Mr. John Hagan, Chief
EIS Branch
US EPA
Atlanta, GA 30365

Dear Mr. Hagan:

The Florida Chapter Sierra Club, as well as other citizen's groups and individual citizens, participated in the joint USEPA/FDER Public Scoping Meeting of April 9, 1981. Our comments regarding the study of energy conservation alternatives were in concert with most of those presented where the overwhelming majority of citizens wanted cleaner and cheaper energy conservation instead of two expensive and polluting 600 MW coal fired power plants. The USEPA is to be commended for its interest in studying alternatives, and presenting four such alternatives to construction of the SJRPP. To my knowledge this is the first EIS in the state of Florida that has presented any meaningful alternative to building a new electric power plant. As such, it represents a major step forward in implementing a public policy choice mechanism for delivery of energy services. The major question regarding these alternatives is why was one of them not selecte as the preferred action? The Draft EIS states clearly that "... various alternativ to the proposed project are available which appear to be at least comparable to the SJRPP from an economic and an environmental standpoint." In addition, the Draft EIS states "... these alternatives meet the oil backout goals of the proposed project ...." Why then does the USEPA recommend the action that produces adverse impact on wetlands and the excerbation of existing water quality problems? And how is the best interest of the public served when better alternatives are clearly identified, and yet purposefully discarded in favor of poorer alternatives?

While USEPA's inclusion of generation alternatives is to be applauded, the major alternative asked for by Sierra Club and many citizens - energy conservation was basically ignored. Only one of the four alternatives proposed by USEPA contained any element of energy conservation and that was a small program of solar water heaters (10% of existing customers and 25% of new customers). The remaining three alternatives were entirely devoid of energy conservation components. In the Sierra Club comments of April 9, 1981, we stated:

> "The U.S. EPA has a legal responsibility to assure that viable alternatives are identified and studied. In particular, the Sierra Club requests the following actions from EPA with respect to the EIS on the JEA/FPL application:

1. that conservation/use of renewable sources be included as one of the alternatives to be studied in the EIS process;

2. that the conservation/renewable sources alternative receive consideration and study equal to any other altnerative as required by NEPA; and

3. that EPA use the Environmental Defense Fund-Willey model, previously endorsed by EPA in the BLM Allen-Warner Valley Energy System EIS process to conduct a rigorous analysis of the conservation/renewable sources alternative."

The minor inclusion of conservation/renewable sources as one element of one alternative hardly qualifies as a legitimate response to this request. Building a new coal fired power plant at $1000 per KW capacity provides electricity at a cost of about 9 cents per KWH. At this price, many programs of conservation, renewable sources and cogeneration become cost-effective. In addition, the same oil reduction possible from burning coal is obtained by these cheaper and cleaner alternatives which do not have the severe environmental problems with their use as coal does. The EPA has not only failed in its legal obligation to provide a thorough analysis of conservation, but it has also failed the vast majority of Florida citizens who want clean air, clean water and the least expensive approach to satisfying their energy service needs.

This Draft EIS is clearly inadequate by any standards. It violates the CEQ Guidelines for preparing environmental impact statements. The 1973 Guidelines touched upon the requirement that energy conservation alternatives to power plant construction be considered. 40 C.F.R. §1500.8(a)(4). This requirement was expanded in the 1978 Guidelines which require a discussion of all reasonable alternatives including reasonable alternatives not within the jurisdiction of the lead agency (40 C.F.R. §1502.14(c)). The energy requirements and conservation potential of various alternatives must be discussed. 40 C.F.R. 1502.16(c).

The adequacy of environmental impact statements was recently examined in depth by the United States District Court for the Eastern District of California in the case of California v. Bergland, 483 F. Supp. 465 (E.D. Cal. 1980). The court pointed out that an agency need not "ferret out every possible alternative, regardless of how uncommon or unknown," Vermont Yankee Nuclear Power Corp. v. N.R.D.C., 435 U.S. 519, 551 (1978), but it said an agency could not ignore obvious alternatives. 483 F. Supp. at 488. A program of energy conservation measures is clearly an obvious alternative which cannot be ignored. The United States Supreme Court refused to find a Nuclear Regulatory Commission EIS inadequate for failure to examine energy conservation as an alternative in the 1978 Vermont Yankee case, 435 U.S. 519, but the opinion in that case revolves around the point that the EIS was developed at a time when "there was little serious thought in most Government circles of energy conservation alternatives." 435 U.S. at 552-553. The Court pointed out that the concept of alternatives is an "evolving" one and listed the evolutions of agency requirements for consideration of conservation alternatives. Id. There can certainly be no argument now that energy conservation is not a serious alternative.

The Sierra Club feels that a porgram of energy conservation measures is a reasonable alternative to SJRPP. We have attached an appendix outlining one such program. The EPA should issue and circulate a supplement to the DEIS reviewing this alternative before the final EIS is published.

As the court said in California v. Bergland, failure to discuss a reasonable range of alternatives or to reveal the criteria employed for selecting reasonable alternatives suggests either that the agency has not taken a hard look at the environmental factors involved and has therefore acted arbitarily or that it has simply failed to reveal its process of decision making. 483 F. Supp. at 488. Either way, the EIS will be fatally deficient.

The Draft EIS for SJRPP has not examined a true energy conservation alternative. Failure to address this alternative, or failure to explain why this alternative was left out means that EPA has not made the full environmental disclosure contemplated by NEPA. 483 F. Supp. 488. Unless this Draft EIS is amended to include analysis of the conservation alternative, it will be susceptible of being judged similarly deficient.

In summary, the EPA has a legal responsibility to identify and study all viable alternatives. Furthermore, EPA has already established a precedent for studying the conservation alternative in the Allen-Warner Valley Energy System EIS.

The Sierra Club reiterates its formal request that EPA adhere to the requirements of the law in formulating the EIS for the SJRPP. EPA must include a legitimate conservation alternative to satisfy the requirements. Following minimum legal requirements should be standard agency procedure and should not require legal battles from citizen groups to assure such compliance.

Very truly yours,

Barney L Capeha

Barney L. Capehart
Chairman, Power Plant
Siting Committee

ATTACHMENT I

Conservation Alternative to JEA Unit

A. Energy Output of JEA Unit

600 MW capacity at 60% use
600,000 KW x 5256 KWH/KW = 3154 GWH

B. Residential Conservation Measures
(based on 230,000 customers)

1. Replace refrigerators by high efficiency models
Savings of 924 KWH/customer
100% saturation of refrigerators
924 x 230,000 = 213 GWH

2. Replace resistance water heaters with solar models or with dedicated heat pump water heaters
Savings of 2700 KWH
85% saturation of electric w/h
.85 x 2700 x 230,000 = 528 GWH

3. Replace strip heaters by heat pump units
Savings of 2826 KWH
32% saturation of strip heaters
.32 x 2826 x 230,000 = 208 GWH

4. Replace central air conditioners with high efficiency units
Savings of 2000 KWH
52% saturation of central a/c
.52 x 2000 x 230,000 = 239 GWH

5. Replace window air conditioners with high efficiency units
Savings of 666 KWH
34% saturation of window a/c
.34 x 666 x 230,000 = 52 GWH

Total savings 1240 GWH

The conservation share from the residential sector is 1240/3154 = 39.3%. Since this sector accounts for only 37% of JEA's load, it meets the proportional savings required.

C. Commercial and Industrial Conservation similar savings are possible in the commercial and industrial sector from energy efficiency improvements in space heating, space cooling, lighting, refrigeration and cogeneration. Jacksonville already has the largest commercial cogeneration facility in the county at Regency Square.

D. The conclusion is that energy conservation is a viable alternative to building JEA 1.

F

HECKSCHER DRIVE
FISH CAMP, MARINA AND BUSINESS ASSOCIATION
P.O. Box 343 Ft George Island, Fla 32226

Dec 7, 1981

U.S. Environmental Protection Agency
Region IV
Consolidated Permit Branch
345 Courtland Street N.E.
Atlanta, Georgia 30365

Sirs:

The majority of the members of our Business Association are directly or indirectly dependent upon the recreational and commercial fishing and boating areas of the St Johns River, North shore.

We are appalled to learn that the Jacksonville Electric Authority is requesting a variance to discharge into the St Johns river estuaries contaminated water from piles of coal necessary for their planned coal fired plants. Two of our fish camps are located on Browns Creek, the main discharge area. Other Fish Camps are located near by. This is one of the finest fishing areas in Florida. The marshes provide the breeding grounds for fish and shrimp that range the entire north coastal area.

The theory expressed by one witness that the river already exceeds mercury pollution standards and a little more pollution will not make much difference is particularly shocking. The posting of signs along the river warning people not to eat fish caught near the coal fired plant will have a devastating effect on near by fish camps and leave a question of doubt on all the northshore fishing areas. This type of belligerent disregard for the purity of the St Johns River and its detrimental effect on our Business and residential community should not be tolerated.

As an organization we request that no variance or permits of any type be granted to JEA that would allow for even a minute pollution of the St Johns River.

FOR THE ASSOCIATION

Horace Black

Horace Black, President

WATER ENFORCEMENT
BRANCH
RECEIVED
DEC 9 1981
EPA-REGION IV

STATE OF FLORIDA
FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICE
DOYLE CONNER COMMISSIONER * DIVISION OF FORESTRY / COLLINS BUILDING / TALLAHASSEE 32304

FREP

RECEIVED
DEC 11 1981
DIV. ENVIRONMENTAL PERMITTING

December 8, 1981

Mr. Hamilton S. Oven, Administrator
Power Plant Site Certification Section
Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, FL 32301

RE: Jacksonville Electric Authority Revision to St. Johns River Power Park Units 1 & 2 Application

Dear Mr. Oven:

Attached are some forestry recommendations formulated by Duval County Forester James A. Bryan following a field examination of the above referenced site.

If the Jacksonville Electric Authority needs any assistance with implementation of any of the recommendations, they can contact Mr. Bryan at our Jacksonville District office, telephone, 904/781-1434.

Sincerely yours,

George L. Reinert

George L. Reinert

Attachment

cc: County Forester Bryan

ENVIRONMENTAL IMPACT STATEMENT BRANCH
RECEIVED
DEC 17 1981
REGION IV EPA

STATE OF FLORIDA
FLORIDA DEPARTMENT OF AGRICULTURE & CONSUMER SERV
DOYLE CONNER COMMISSIONER * DIVISION OF FORESTRY / COLLINS BUILDING / TALLAHASSEE 3

FREP
EIS
Power Plants

RECEIVED
DEC 8 1981
DIVISION OF FORESTRY
F.R.E.P. BUREAU

December 7, 1981

MEMORANDUM

TO: George L. Reinert, Chief, FREP Bureau

FROM: James A. Bryan, Forester I, Duval County Jab
904/781-1434

SUBJECT: JEA - Revision to St. Johns River Power Park Application

At your request I inspected the site for the proposed JEA coal fired plant. The vegetative cover is accurately described in the JEA assessment. The site is basically a cut over flatwoods area interspersed with cypress and hardwood strands. The site is located in one of the least productive areas in Duval County for timber growth. Thus, from a forestry standpoint, the elimination of the area from the forest land base is not significant. Also, because of the low productive capacity of the area, any pollutants that are emitted will not significantly lower forest productivity. W-18

The vegetative cover which will be retained within the site boundaries is best suited for aesthetic and wildlife management. To control erosion I strongly recommend the planting of slash pine and other native trees and shrubs found in the immediate vicinity. W-19

I suggest before the land clearing begins that JEA allow private individuals to salvage standing and down timber for firewood. It would also be appropriate for JEA to allow a plant dig in which individuals could dig up any trees or shrubs which would otherwise be bulldozed. W-20

In summary, I feel that the proposed coal fired plant will not significantly impact forest production.

REGION IV

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ATLANTA REGIONAL OFFICE
RICHARD B. RUSSELL FEDERAL BUILDING
75 SPRING STREET, S.W.
ATLANTA, GEORGIA 30303

IN REPLY REFER TO:

December 8, 1981

Mr. John E. Hagan, III, Chief EIS Branch
U. S. Environmental Protection Agency
345 Courtland St., N. E.
Atlanta, GA 30365

Dear Mr. Hagan:

This is in reference to the Draft EIS for the St. Johns River Power Park of the Jacksonville Electric Authority.

We have completed our review of the DEIS for the proposed project. Our primary concern relates to increased ground level concentrations of SO_2, NO_2, particulates, and the anticipated noise impact that would occur during the steam blowouts. This department reviews all proposed HUD-assisted (Mortgage Insurance) housing project sites for environmental quality considerations. When applications for proposed housing sites are to be located in the vicinity of a "Power Park" are submitted to HUD we will closely examine the impact of additional air emissions and noise upon the prospective occupants of the sites. If these concerns are considered to be significant, the site may be rejected and mortgage insurance or financial assistance denied by the department. W-21

We agree with your proposal concerning the sale of fly ash collected in the electrostatic precipitators. However, we recommend that appropriate measures be taken to make certain that significant quantities of the fly ash are not lost during the transporting away from the plant site. W-22

We appreciate and thank you for the opportunity to review and comment on this Draft EIS.

Sincerely,

Charles N. Straub

Charles N. Straub
Regional Environmental Clearance Officer
Office of Regional Community
  Planning and Development

F

United States Department of the Interior
FISH AND WILDLIFE SERVICE
15 NOR- AURA STREET
JACKSONVILLE, FLORIDA 32202

December 9, 1981

Mr. Robert B. Howard, Chief - EIS Preparation Section
U.S. Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30308

FWS Log No. 4-1-81-134

Dear Mr. Howard,

This presents the Fish and Wildlife Service's Biological Opinion in accordance with Section 7 of the Endangered Species Act, with reference to the issuance of a new source NPDES permit to Jacksonville Electric Authority (JEA) for the St. Johns River Power Park. Formal consultation was initiated by your agency on October 30, 1981. In our letter of July 14, 1981, we identified the following threatened and endangered species that should be evaluated with reference to the power plant and attendant transmission lines: West Indian manatee, brown pelican, eastern indigo snake, American alligator, bald eagle, and red-cockaded woodpecker. A complete administrative record of this Consultation is on file in this office.

Your letter of October 26, 1981 stated that the Environmental Protection Agency (EPA) had determined that the proposed action would affect the above listed species, and submitted the Draft Environmental Impact Statement (DEIS) in lieu of the Biological Assessment as required under Section 7(c). To assist in the preparation of this opinion we have conducted a field inspection of the Eastport and Blount Island sites and visited the Northside Generating Station, as well as utilizing other sources of information.

There were a number of alternatives identified in the DEIS and in summary, they included No Action, modified development of the Eastport site, converting 2 generators at the Florida Power and Light's Sanford plant from burning oil to coal, and purchasing power from Georgia Power Company.

This Biological Opinion addresses only the proposed action, that of constructing a new 1,200 megawatt coal-fire generating station at the Eastport site in Jacksonville, a coal unloading facility on Blount Island, and attendant transmission lines.

F

In order to separate potential impacts related to the different phases of the proposed project, we have divided the opinion into three parts: 1. Power Plant 2. Coal unloading facility 3. Transmission lines.

1. Power Plant

The proposed plant will generate a maximum of 1,200 megawatts from two 600 megawatt coal-fired units. The site selected for the plant is referred to as Eastport, and is located adjacent to the existing Northside Generating Station (NGS) in northern Duval County. Eastport is 1,656 acres, made-up of sandhill ridges, pine flatwoods, bay and cypress heads and salt marsh. The actual plant will require about 300 acres, the remainder being utilized as a buffer area and for solid waste disposal. Coal will be transported into the power plant by either rail or barge to Blount Island, with a shuttle train delivery to the plant. Make-up water to cool the generator units will be drawn from the NGS discharge channel and blowdown water will be discharged into the NGS discharge channel. At the present time, the warm water discharge from NGS is moved from an elevated discharge basin into a pipe that has its point of discharge in the St. Johns River. The point of discharge is located 28 feet under water. The intent is to prevent warm water from being discharged into San Carlos Creek. On/or about 12 November, we were notified that three manatees were observed in close proximity to this discharge basin. We confirmed this observation on 16 November, and noticed that a leak had developed in the basin. On 3 December, we did not observe any manatees in the area and water temperature directly outside of the discharge basin, within the area of the breech,averaged about 64°. W-23

The primary impacts associated with this phase are initial site clearing, road construction, and constructing waste disposal facilities. Based upon your threatened and endangered surveys for the Eastport site, it is our opinion that this phase is not likely to jeopardize the continued existence of the brown pelican, eastern indigo snake, American alligator, red-cockaded woodpecker, bald eagle or manatee. We do recommend that in addition to relocating gopher tortoises, as suggested by the Florida Game and Fresh Water Fish Commission, a concerted effort be made to also relocate the eastern indigo snake, if found on the site. Relocation efforts should be coordinated with the State and U.S. Fish and Wildlife Service - Jacksonville Area Office.

With reference to the manatee, we don't foresee any problem with the small increase in temperature within the vicinity of the NGS point of discharge. Our only concern is the existing breech within the discharge basin. At the present time, it appears to us that amount of warm water leaking from the discharge basin would not be a primary attractant to manatees in cold weather. W-24

There are several warm water refugia located approximately 6 miles down river of NGS that are used by manatees during periods of cold weather. We would suggest, however, that if NGS is planning to repair this leak, repairs should be initiated during the warmer months; thereby eliminating the potential of adversely impacting manatees. If this is not possible, JEA should contact our office prior to this work. W-24

II. Coal Unloading Facility

This facility will be located on the south end of Blount Island. This island was created in 1950 from material dredged from the ship channel. The proposed facility will require 55 acres with an additional 31 acres utilized for a rail line. Much of Blount Island is in highly disturbed state consisting of 4 primary plant communities: grassy shrub, Myrica shrub, Baccharis shrub, and salt marsh.

Based upon your threatened and endangered surveys, it is our opinion that this phase of the proposed action is not likely to jeopardize the aforementioned listed species. With reference to the manatee, potential impacts that may result from the proposed dredging and barge operations will be addressed through a separate Section 7 Consultation with the Jacksonville District Corps of Engineers. W-25

III. Transmission Line Corridors

The proposal is to construct two-230 KV transmission lines from the power plant to the Normandy Substation on the west side of Jacksonville and two other lines to the Fort Caroline and Robinwood Substations on the east side of Jacksonville. The preferred corridors in which the transmission lines will be constructed follow existing transmission line rights-of-way over more than 90% of their length. They will, however, require a width expansion of 150 feet to accommodate the new lines. The construction of a new right-of-way will require about 200 feet.

After reviewing the DEIS and discussing the methods used to survey the corridors for threatened and endangered species, it is our opinion that the corridors will not jepordize the continued existence of the bald eagle, red-cockaded woodpecker, eastern indigo snake, or American alligator. Potential impacts to the manatee resulting from the placement of transmission towers in Mill Cove will be addressed through a separate Section 7 Consultation with the Jacksonville District Corps of Engineers. W-26

The bald eagle nest that is located north of Craig Municipal Airport is approximately 1/2 mile west of the existing right-of-way. No additional work is anticipated in this particular section of the right-of-way.

In summary, the proposed power plant, coal unloading facility and attendant transmission lines are not likely to jeopardize the continued existence of the American alligator, eastern indigo snake, bald eagle, red-cockaded woodpecker, brown pelican or manatee, or adversely modify the manatee's Critical Habitat. With reference to the proposed dredging operations that will be required at Blount Island and at Mill Cove, and its potential impact on manatees, the Fish and Wildlife Service will request a separate Section 7 Consultation from the Jacksonville District Corps of Engineers. W-27

This Biological Opinion is intended to assist the Environmental Protection Agency in meeting its responsibilities under Section 7. This completes consultation under Section 7 of the Endangered Species Act. If there are any modifications made in the project or if additional information becomes available relating to threatened or endangered species, reinitiation of consultation may be necessary.

Sincerely yours,

Donald J. Hankla

Donald J. Hankla
Area Manager

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REGION IV - EPA

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Defenders
OF WILDLIFE

ENVIRONMENTAL IMPACT ST
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December 10, 1981

Mr. F. Theodore Bisterfeld
EIS Project Officer
U.S. Environmental Protection
Agency, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Draft Environmental Impact Statement (DEIS) for Proposed Issuance of a New Source National Pollutant Discharge Elimination System Permit: St. Johns River Power Park, EPA 904/4-81-088.

Dear Mr. Bisterfeld:

Defenders of Wildlife (Defenders)[1] submits the following brief comments in response to the above-referenced DEIS. The scope of Defenders' concerns and observations regarding the proposed construction of the St. Johns River Power Park is generally limited to consideration of that activity's effects upon the West Indian Manatee (Trichechus manatus).

The West Indian Manatee is a highly endangered species of marine mammal, whose numbers in Florida have been reduced to approxiamtely 800-1,000 animals.[2] Manatees have been protected by Florida State law since 1893, and by Federal law since 1967, but there is little or no indication that the species is recovering. Pre-exploitation population figures are poorly documented; however, it is known that manatees were historically hunted by Indians as a food source between the 16th and 19th centuries. There was additionally some poaching of manatees during the Depression and World War II, when meat supplies were severely diminished.[3]

W-28

Manatees additionally have been, and continue to be, more seriously imperiled by increased human intervention into warm water habitats. These docile, slow-moving vegetarians must contend with ever-increasing powerboat and barge encounters, as well as with flood control structures, fishing gear, vandalism, and alteration of habitat and food source availability through dredging, sewage, and wastewater disposal activitites. When these direct impacts

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[1] Defenders of Wildlife is a national, non-profit, tax-exempt organization with a membership of approximately 55,000 citizens, and is dedicated to the protection of the nation's wildlife resources and the natural environment.

[2] "West Indian Manatee Recovery Plan," prepared by Robert L. Brownell and West Indian Manatee Recovery Team, April 1980, p.3.

[3] Ibid, pp.2-3.

1244 NINETEENTH STREET, NW • WASHINGTON, DC 20036 • (202) 659-9510

are coupled with the species' extreme sensitivity to water temperature,[4] it is something of a wonder these creatures manage to survive at all. Indeed, the Marine Mammal Commission has stated:

> "There is little question that if the population numbers only 1,000 animals and the present levels of mortality continue, the Florida manatee population will soon become extinct."[5]

It is with respect to water temperature sensitivity in particular, and water quality generally, that the DEIS must concern its discussion of manatees. The effects of manmade (or artificial) warmwater refugia may, in a real sense, be beneficial to manatees. Some researchers have endorsed such facilities more strongly:

> "Numerous reports of animals succumbing to the cold indicate such refugia may be necessary for survival in Florida during protracted freezes (Layne 1965; Moore 1951a, 1956; Krumholz 1943; Hamilton 1941; Cahn 1940; Bangs 1895)." [6]

W-28

The introduction of facilities such as the proposed Power Park, however, also presents a double-edged sword:

> "The winter of 1976-77 was the coldest winter in the recorded history of Florida. Campbell and Irvine (1978) reported on a substantial die-off of manatees during this winter in Brevard, Duval and St. Johns Counties, all north of the species' known historical range.... They hypothesized that the availability of artificial refugia in northern Florida (Brevard Co.) has caused some manatees to winter in areas not naturally suited to their needs. When the artificial warmth proved inadequate due to the combination of a partial shutdown and the unusually severe weather, some of these animals apparently died of cold-related causes."[7] (Emphasis added.)

4/ According to Dr. Howard Campbell, Manatee Research Program (National Fish and Wildlife Laboratory), manatees are extremely vulnerable to cold water and appear to be unable to survive prolonged periods in waters less than 65°F. (Dr. Campbell's views were cited in "Mermaids in Danger," by Kyle Hill, Florida Wildlife, May-June, 1980, p. 31.)

5/ "Annual Report of the Marine Mammal Commission, Calendar Year 1980: A Report to Congress," p. 19.

6/ "The West Indian Manatee," by Sandra L. Husar, Fish and Wildlife Service, U.S. Department of the Interior, Wildlife Research Report 7, 1977, p. 10.

7/ "Manatee Recovery Plan," p. 8.

Power generating stations, such as that currently proposed, become in effect artificial manatee habitats, by providing warm-water areas the animals may not be able to locate elsewhere. Production of such facilities may not proceed without a finding, through consultation, that the manatee's continued existence will not be jeopardized -- either directly or by destruction or adverse modification of its critical habitat. This consultation is mandated by Section 7(a) to the Endangered Species Act of 1973, as amended (ESA) (P.L. 93-205). Following consultation, Section 7(b) directs the Secretary (of the Interior) to promptly provide a written opinion, "detailing how the agency action affects the species or its critical habitat." The opinion shall:

> "...suggest those reasonable and prudent alternatives which he believes would avoid jeopardizing the continued existence of any endangered or threatened species or adversely modifying the critical habitat of such species, and which can be taken by the Federal agency or the permit or license applicant in implementing the agency action." (§ 7(b)).

In order to arrive at such final opinion, Section 7(c) directs that:

> "...such agency shall conduct a biological assessment for the purpose of identifying any endangered species or threatened species which is likely to be affected by such action."

The DEIS offers little indication these mandates have been met by the applicant. Other than providing a listing (Table 3.5-5) of "rare, threatened, and endangered species" occurring in the project vicinity, there is no indication in the DEIS that Section 7 consultation has been initiated. Table 3.5-5 does note, however, that the project site occurs within manatee critical habitat.

Virtually the only other discussion of the manatee is found in Appendix O (Biological Resources), which is accompanied by a statement indicating that neither the Florida Department of Environmental Regulation nor the U.S. Environmental Protection Agency has yet reviewed its contents. The discussion itself consists of the following informational statements: 1) the proposed project occurs "well within the recognized critical

W-28

habitat for the manatee;" 2) a JEA/FP&L survey conducted in the area between January and April 1980 revealed no manatee sightings, although "several other sightings" were reported by local residents during the summer; and 3) accidental collisions with boats and barges, canal lock operations, vandalism, and loss of habitat to "incompatible human water traffic" all contribute to the decline of the manatee. (p. 0-23). These few sentences, combined with Table 3.5-5, must not be considered compliance with Section 7 to the ESA. With the permitted construction of this facility also comes the legally mandated responsibility to ensure related activities do not jeopardize the manatee or its critical habitat. It is not a responsibility to be taken lightly. Defenders urges that the results of a comprehensive Section 7 consultation be made available to the public in the FEIS.

Such consultation should also address the contingency of power outages, and the resultant impact on manatees dependent upon warmwater effluent. Dr. Ross Wilcox (Florida Power and Light) has stated that plant operators are "aware of the risk to the manatee should all generating units at a plant be shut down at the same time during the winter season."[8] Plant operators must exhibit more than awareness. Inasmuch as plant construction and operation create artificial habitats which may become hazardous to manatees during planned (or unplanned) power outages, the applicants must accept responsibility for the animals' welfare. W-28

Defenders additionally expresses concern at the acknowledged adverse effects the proposal will have on water quality and thus on all aquatic life in the St. Johns River. Wastewater discharges will further contaminate an area which "already contains excessive amounts of those contaminants." (p. xi). Aquatic communities are "currently stressed by poor water quality caused by elevated nutrient and pollutant loadings." (p. 3-36). Although some discussion is presented on aquatic plant communities, for instance, there is no connection made in the DEIS from anticipated impacts on water quality to plant life to the availability of food sources for manatees (or other plant consumers). As part of its comprehensive consideration of manatees, the FEIS should identify what natant and emergent plant species (assuming, as the DEIS does, that submergent vascular species are not present in the Blount Island Channel) are important food sources to the manatee, and whether those species are present in the proposal area. For instance, are any of the following found in the area: Eichornia crassipes, Alternanthera philoxeroides, or Salvinia rotundifolia? W-28

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[8] Comments of Dr. Ross Wilcox, Florida Power and Light Company, at the 19th Meeting of the Marine Mammal Commission, and the 15th Meeting of the Committee of Scientific Advisors on Marine Mammals, Tampa, Florida, February 21-22, 1980.

According to state regulations, responsibilities for manatee protection are vested with both the Department of Natural Resources and the Florida Game and Fresh Water Fish Commission. Yet the Commission, in its final report (Appendix H) oddly makes no reference to manatees, although several salient points are made concerning the overall unsuitability of the proposal site:

> "Early in the site selection process, the Eastport site was ranked last in a group of eight alternate sites because of the adverse environmental impacts expected to occur at this location. A more environmentally sensitive site of the proposed power plant could hardly have been chosen. However, since JEA has selected Eastport as its preferred site and wishes to pursue it, we feel very strongly that the utility has an obligation to aggressively pursue and solve the environmental problems associated with siting a power plant in this sensitive area. This includes making every effort to move the plant away from the marsh, carefully collecting and treating all stormwater runoff, providing proper wastewater treatment so that no variance to water quality standards is necessary, providing adequate liners for all waste disposal areas to prevent groundwater contamination, and evaluating the potential for acid rain problems emanating from the proposed plant."

Defenders also notes that Appendix O indicates the presence of Delphinus delphis (Common Dolphin) in the estuarine area adjacent to the Eastport site. (p. O-33). There appears to be no further discussion of dolphins in the DEIS. The applicants should provide more information about the occurrence of this marine mammal in the proposal area. Is there a potential, as a result of plant construction or operation, for unintentional "taking" of these animals? Are the dolphins, like the manatees, subject to encounters with boat traffic as either a direct or an indirect result of plant construction and operation? These questions should also be addressed in the FEIS. W-29

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Defenders' succinct conclusion regarding the DEIS is to remind the applicants of their responsibilities to the West Indian Manatee and to other wildlife species. Applicants must ensure that, as a result of project-related activities, the manatees' future is not rendered so much more precarious.

Sincerely,

Sherrard C. Foster

(Ms.) Sherrard Coleman Foster
Marine Issues Specialist

DEPARTMENT OF HEALTH & HUMAN SERVICES

[illegible]

(404) 262-664

December 11, 1981

Mr. John E. Hagan, III
Chief, EIS Branch
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Hagan:

We have reviewed the Draft Environmental Impact Statement (EIS) for the Proposed Issuance of a New Source National Pollutant Discharge Elimination System Permit to the Jacksonville Electric Authority and the Florida Power and Light Company - St. Johns River Power Park, Duval County, Florida. We are responding on behalf of the Public Health Service and are offering the following comments for your consideration in preparing the final document.

We understand that the applicants have proposed to jointly construct and operate a New Source 1,200 megawatt coal-fired steam electric generating station on a 1,656-acre site. In general, we have no major objections to the proposed action and, with some exceptions, we find that the EIS adequately discloses both the significant effects of the proposed action and the mitigation steps that will or could be incorporated into the project's permits and contracts.

General

The Draft EIS omitted several public health sections in error. These omissions included a portion of 4.13.13 Other Vectors and 4.13.2, pages 4-137 and 4-138. Please send these to us at your earliest convenience. W-30

Noise

The EIS should address the potential noise impacts to any sensitive land uses from increased usage of the Seaborne Coast Line Railroad from (1) coal delivery unit trains when or if the coal cannot be delivered to the Blount Island coal terminal by ocean-going barges or (2) shuttle train deliveries to the plant from the Blount Island coal terminal. W-31

Vectors

It is important that this proposal not be allowed to increase any local vector populations capable of causing vector-borne disease or nuisance problems. The EIS should include a brief history of vector-borne disease and nuisance problems W-32 that have occurred in the area and the local efforts to mitigate these problems. In view of the potential vector habitat areas to be created by the applicants, we recommend that a vector control management plan be developed by the applicant and that it be approved by the local health department. The EIS should address the project's potential vector-borne impacts; this information can be obtained from the local health department. W-32

Water Supply

Under maximum usage conditions, the EIS declares that the cone of depression at the site boundary was 25 feet with a drawdown of 14 feet at the nearest off-site well. Will any off-site wells require additional drilling or pump level adjustments to avoid any problems associated with the projected drawdowns? The cumulative long-term impacts upon the Floridan Aquifer from the project and others in the area should be better described. W-33

While a long-term groundwater monitoring program to evaluate the potential for groundwater contamination from solid waste disposal leachate is necessary, the steps that will be taken in the future if contamination becomes a problem should be discussed. A more positive approach would be to incorporate design features into the solid waste disposal areas that would prevent the occurrence of leachate contamination rather than wait for contamination to occur. W-34

We appreciate the opportunity to review the Draft EIS. Please send us one copy of the final document when it becomes available. Should you have any questions about our comments, please call Mr. Robert Kay of my staff or me at FTS 236-6649.

Sincerely yours,

for Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

ENVIRONMENTAL
14 198
REGION IV EFA

Mat Roland
P. O. Box 37
Mayport, FL 32267
(904) 246-9443

December 11, 1981

Mr. John Hagan, III
Chief of E.I.S., Region IV
345 Courtland St., N.E.
Atlanta, GA 30365

Dear Mr. Hagan:

The coal fired electrical plant proposed by the J.E.A. of Jacksonville, Florida will constitute a serious threat to the environment. We petition your office to deny the J.E.A. the permit to build the plant. The J.E.A. has asked for a variance to allow greater amounts of mercury to be dumped into the estuaries and tributaries of the St. Johns River. The river already is at nearly the limit on mercury standards by state standards. There are times when even these standards are exceeded.

To grant a variance to the J.E.A. on mercury standards should be illegal. A greater amount of mercury in the river will constitute a great threat to the seafood industry, not only in this area but also to the whole state and also to fisheries in Georgia, South Carolina, and North Carolina.

Fish and shrimp are migratory animals and it has been proven through studies undertaken by National Marine Fisheries Service that shrimp travel between South Carolina and Florida.

This fact alone makes a variance in mercury levels in the St. Johns River a matter of Federal jurisdiction. For the J.E.A. to make statements that fish should not be eaten if caught within a distance from the plant is, of course, ridiculous.

W-35

One very important fact to be considered on mercury is that it accumulates in fish and the amount increases as the size of the fish increases. Small fish ingest mercury. Then larger fish also ingest mercury from the river, but larger fish ingest greater proportional amounts of mercury because they also eat the smaller fish which have accumulated the mercury in their systems. So, as the fish get larger and the more fish they eat, the greater the threat of mercury poisoning becomes.

A mercury scare would be devastating to parts of the economy of the State of Florida. First, and most important of all, would be the threat to the health of the people who would eat the seafood containing concentrated amounts of mercury. Second would be the almost totally destructive effect it would have on the seafood industry. Next, there would be a threat to the tourist industry and the restaurant business in the State of Florida. W-35

Please note that we petition rejection of permit by your office for the plant proposed by the J.E.A.

Mat Roland Seafood Co.

Southeastern Fisheries Association

Judy L Stern
Organized Fishermen of Florida

Florida Shrimp Co-Op

Miss Becky Seafood

Atlantic Seafood Co.

REGION IV EPA

F

STELLA D. ANDREWS
115 Palm Avenue,
Jacksonville, Fl 32218

December 12th, I981.

Ref: 4SA-EIS
Re: St. Johns River Power Park EIS/SAR

F. Theodore Bisterfield
EIS Project Officer
United States Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365.

Dear Mr. Bisterfield,

Your kind offer of further comments from organizations and citizens in opposing the proposed JEA Power Park are herewith cited for your attention:

1.

Quoting from an enclosed article in the Fla Times Union dated Dec 10th, 1981:

"St.Johns River Management member Trustee in Gainesville Lynne Capehart said a 10 percent drawdown of underwater levels can be expected when Jacksonville builds its proposed new power plants on the north side of the river."

2.

Quoting from and editorial appearing in the Fla Times Union December 13, I981

"The idea of the St.Johns River as a mighty natural system with its headwaters in its acient marshes, cleansing and storing the water and nurturing aquatic life that feeds birds and other animals, probably has about six months to live.

Unless there is a real outcry from the area extending from Verobeach to Jacksonvill the river seems doomed to lose about a hundred miles of its ecosystem and Brevard County is going to lose clean water it needs to supply its coastal population." (articl enclosed).

3. Now let us go back to January 9, 1971 and quote Nathaniel P. Reed, Chairman, Fla Dept of Air and Water Pollution Control, before the Florida Wildlife Federation in Jacksonville Florida:

"Those, the local or County Planning and Zoning Boards, are the most dangerous boards in existence - they can wipe out in minutes what it took God centuries to create To Quote from the Planning Board in Jax at the time:

The Jacksonville Planning Board in April of I962 published a long-range land-use study, financed in part by an urban planning grant from HUD -sold locally for $5.00 and entitled "Plan 1990". It was a thing of beauty, colored maps, etc.

The Plan proposed two areas for 'open space!: Turner's Pond on the old Imeson Airport property, and the vast Tidal salt marshes on the north side of the St.Johns (North of Heckscher Drive, east of Clapboard Creek Complex. Turner's Pond was a 42 acre lake filled with a garbage dump and then sold for an industrial Park.

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2— of Comments by Stella D. Andrews Ref St. Johns Power Park proposed Site in Jacksonville, Florida.

— Industrial Park.

Those great salt marshes known as the Hannah Mills Creek Tidal Complex were set aside for 'open use - conservation' in the original Zoning Code. The area has been the center of conservationist's concern since 1967, because the Jacksonville Port Authority designated - with the approval of the Florida Cabinet - some 1200 acres of the Hannah Mills Complex to be used to Dump dredge spoil. . (An update to dumping dredge spoil; recently I read an article in the Times Union where they were quoting the Corp of Engineers on rehibilitating Mill Cove Complex which will cost around 5 million dollars of tax money.) On the night of December 5, 1968, developers decended upon the Zoning Board at a meeting in the Planning Board's Office. Immediately after that meeting, the Zoning Board eliminated Hannah Mills Complex as an 'open space' and designated these priceless tidal marshes as 'industrial development' area. W-38

On a personal note: My husband and I moved to Heckscher Drive in 1958 and bought a home backing on Clapboard Creek. We were under heavy restrictions within the original deed from North Shore Corporation and these restrictions as to appurtances were to continue until 1975. We looked into building a dock facing the creek and found that Seaboard Coast Line Railway owned a right-a-way adjoining the creek. They graciously gave us a buffer of 200 feet and we left happy, thinking that footage placed the railway into deep water and that we would not be bothered further. The Jacksonville based representative of North Shore Corporation at one time advised us against any more improvements on our property 'because it is all going Heavy Industry down to the mouth of the St.Johns River! At the time they were selling lots for residential purposes. W-39

In summing up the above I refer to pgh#2.: The river flows both north and south From numerous sources we believe the headwaters are short lived. It is known that from Palatka to the entrance to the harbor that the river, at times, is polutted. Seminole Coal fired plant received exceptions to polutting the river. Jacksonville Power Park Plant is asking for the same exceptions - adding real danger to the river. W-40

Referring to pgh 1. ; With the drawdown of water from StRegis Paper mill, JEA as it exists, Coal fired Electric plant at Fernandina, Alton Box Factory and numerous other plants using water that we are jeopardizing the coastal water supply and that we should look to placing any further plants further inland. W-41

I served in a Citizens Advisory capacity on both the 1990 Plan and the 2005 Plan. We missed getting the '90 Plan through as an Ordinance but were promised that the State demanded that the 2005 Plan be passed as an Ordinance, otherwise I would not have served on the latter Committee. An Ordinance would have required an exception before a deed was given for this plant site.

Respectfully,
Stella D. Andrews, Sea Oats Garden Circle
115 Palm Avenue, Jacksonville, Fl 32218

Reproduced from best available copy.

Excerpt from Orlando Siting Plan(10 year)

To
Mr. Curry Hutchinson, August 8, 1980:

Until such time as JEA submits more detailed information on sources, points of discharge, proposed treatment facilities, etc., it is not possible to project the envirohmental impact upon the discharges previously noted.

Water Supply:At the proposed Eastport site, there appears to be no reason to seriously doubt that there will be sufficient ground and surface water to meet the needs of the City and JEA, provided proper environmental studies are conducted during the planning and permitting process. These should include well field desig studies.

Very truly yours,
Donald C. Bayly, Assistant Chief.

Reproduced from best available copy.

To
Mr. Curry Hutchinson, Sept 16 1980:

Jacksonville Electrical Authority - Although the Site selection Study did not find that Eastport was the best site,, it has been chosen as the preferred site for the addition of two 600 Mw coal units.. It remains to be seen if the site can be developed in an environmentally sound manner. We have bee working with JEA during the site selection and study process, and will continue to provide assistance through the Site Certification process.

Colonel Robert M. Brantly, Executive Directo

Dept of Community Affairs Divn Local Resource Manage

October 23rd 1980
To Curry Hutchinson
From Tasha Buford
Subject: Jacksonville Electric Authority Ten-Year Site Plan Review -1980

We have reviewed the Jea Plan with regard to the Bureau's Development of Regional Impact and Critical Area Programs. We offer The following comments:

JEA is prepesing two fossil steam power generating units with a designed year-ro capacity of 888MWe. The primary fueld will be coal and the alternate fuel will b heavy oil #6 and gas. Air pollution will be dealt with through boiler design, electrostatic precipitator, and scrubbers. The plant will incorporate a closed c condenser cooling tower in its design.

The primary site named for the units is Eastpoint. This site is located in ne Duval County along the St.Johns River and consists of 1,500 acres. This site is located near an area of critical state concern, but there is one DRI in near nor are there any DRI's in close proximity.

The alternative site is Willis Point located at the southeastern end of Clay County, near the St.Johns River. This site is is not located near an area of

(This memo retyped from handwritten original)

12/21/81

Telcom

Lee Pelej

Re: Comment SJRPP DEIS

Page 4-46 Cone of depression impact.
Should present potential for any freshwater wetlands to go dry at places of high depression.

It could happen in areas where surficial and Florida are relatively contiguous. W-42

TO: Mr. Ted Bisterfeld
Environmental Assessment Branch
U.S E.P.A.
345 Courtland Street, N.E.
Atlanta, Georgia 30365

FROM: Law offices of George W. Ker.. Jr.
Roy L. Beach, Esquire

Dear Mr. Bisterfeld:

I would like to bring to your attention a few points of contention that the Heckscher Drive Community Club, Clean Air Coalition, and the Sea Oates Garden Circle, referred to hereafter as the Intervenors, feel have not been adequately addressed by the applicants in this case.

The first point that we wish to discuss concerns the request for a variance for the dumping of heavy metals into the St. Johns River in excess of the water quality standards. The applicants contend that the heavier concentrations of heavy metals, specifically mercury, will not have an adverse effect on human beings and thusly the variance should be granted. The Intervenors, however, are at a loss to see how the applicant reached this conclusion. The applicants have conducted NO studies or analysis of fish caught in the area where the wastewater from the plant would be discharged in order to find the current level of contamination of mercury in those fish; have not attempted to project the future amount of mercury that will be bio-accumulated in those fish once the applicant starts to exceed the water quality standards; nor has the applicant tried to link up the results obtained by such testing with any published data concerning the effects of mercury poisoning on human beings. The applicant has blithely stated that no harm will come from the granting of the variance and yet they have not conducted any tests to find out. It may well be that no ill effects will occur from the granting of the variance, BUT the converse is equally true and great harm might result. Without conducting any sort of studies or tests on the fish in the river, HOW CAN WE BE SURE ONE WAY OR ANOTHER? The possible harm which would result if the applicant is wrong is just too W-43 great to be overridden by any wish to save the few thousand dollars that would have to be expended in order to find out for sure whether or not the increased mercury concentration in the wastewater discharge would have a harmful effect on the fish in the river. It should be pointed out that a fine summer weekend brings out anywhere from 200-400 people who fish off a bridge that would be within the requested mixing zone. You should require that the applicant conduct studies on the fish in the river and correlate the results of those studies with nationally published, widely accepted data on the possible ill effects that mercury poisoning has on human beings. W-43

The second point that we would like to call to your attention concerns the statements by the applicant that the withdrawal of 5.2-7+ million gallons of water per day from the Florida Aquifer would not have an adverse impact on neighboring wells, both residential and agricultural. The data that the applicant used in making the determinations of no harmful impact through draw-down, etc. is dated 1979-1980 at the latest. You should be made aware that since roughly September of 1980 to present, northeast Florida has been going through a period of "deficient rainfall", what could be called a drought. The gentleman from the St. Johns River Water Management District who testified at the administrative hearings that ran from December 1 to December 4, 1981, Mr. Thompson acknowledged this shortage of rainfall and testified that several areas in the jurisidiction of the water management district were under mandatory water controls due to this shortage of rainfall. Roughly one/fourth of Duval County is under mandatory water control. It is the position of the Intervenors that the applicant used inaccurate data when they used the 1979-1980 data mentioned above. If mandatory water use controls have been imposed in 1981 in parts of Duval County, said county being where the plant is proposed to be constructed, then one need not be an expert to wonder if the data from 1979-1980, a time of no mandatory water controls in Duval County, is still valid over one year later. This, too, maybe a situation where no harm will be caused but ANY result from W-44

ANY calculations based on potentially erroneous data is suspect. The burden here is on the applicant and thus the applicant should either:

1. Demonstrate that their data is still accurate,
2. Show that the potential discrepencey raised by the Intervenors will not materially alter the applicant's conclusions, or,
3. Run a new series of tests with data which takes into account the prolonged period of shortage of rainfall and any depletion of the acquifier resulting from the shortage of rainfall.

W-45

The Intervenors also wish to call to your attention the concerns of some within the Florida Department of Environmental Regulations regarding the wetlands that would be affected by the plant. Some of the witnesses called by the Intervenors at the Site Certification Hearings held December 1-December 4, are members of the DER and seriously questioned Envirosphere's experts' statements regarding the impact on the wetlands that the filling in of around 31 acres of wetlands would have on the surrounding marshlands. Those witnesses contend that those lands are an interconnected, vital part of the eco-system and should be viewed as such. Further, those witnesses questioned the completeness of the studies conducted on the area in this regard and feel that the extent of damage due to the filling has not been adequately addressed.

Lastly we would like to draw your attention to the alternate proposed by Jack Russo, C.Branvold, and Col. Petit at the public hearings on December 1, 1981 at Jacksonville, Florida. Their figures are at a variance with the applicants and the Intervenors urge that both sets of figures be closely scrutinized by your department;

W-46

For example in the draft EIS/SAR, page 2-45, table 2.5-6, the applicant puts forth an operating and maintenance figure for the sulpher dioxide control alternatives which ranges from $99,997 to $151,542. If we use the smaller figure (rounded off to $100,000) and compute how much is to be spent on operating and maintenance over the life of the plant for this equipment, a 0% inflation rate gives a figure of $4 billion dollars. A 9% inflation rate which is still low, gives a figure of $52 billion, rounded off.

W-47

Thus, 52 billion dollars is to be spent just to control one type of pollution. The gentleman from Ebasco who testified before you on December 1, 1981 at the Public Hearings gave a figure considerably less than 52 billion. It should be noted that these figures do not include the cost of operating the particulate alternatives as outlined on Page 2-42, Table 2.5-4 of the Draft EIS/SAR.

W-47 (cont.)

Royce Lyles, manager of the JEA admitted on the stand that he would consider another plan submitted to him which would give all the benefits of the proposed power park and which would have a lesser environmental impact. Page 68 of the official transcript of the hearings, lines 21-24. We would also like to point out to you the fact that Seminole Electric is building a plant similar in size to this proposed plant down in Palatka, Florida, roughly 100 miles south of Jacksonville.

W-48

In conclusion, the Intervenors urge you to do all in your power to save the environmentally sensitive wetlands which would be damaged by this project, and to assure the safety and welfare of literally thousands of people who live, work and play in this area. Require the applicant to conduct fish studies and to justify it's data re the Florida Aquifier. Also scrutinize the plan proposed at the December 1, 1981 Public Hearings by Mr. Russo, Mr. Branvold, and Col. Petit. While it may very well be true that we need the increased power, that does not necessarily mean that this proposed power park is the best way of obtaining that power despite the applicant's contention that it is.

Sincerely,

Roy L. Beach, Esquire
Co-Counsel to the
Heckscher Drive Community
Club, Clean Air Coalition.
and the Sea Oates Garden
Circle

Law Offices of:
George W. Kent, Jr.
2105 Park Ave. #21
Orange Park, FL 32073
(904) 269-5369

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The figures on the other side of this page represent the operating and maintenance costs of the sulfur dioxide controls and the particulates controls; that is the base amount. The inflation factor is 9%. Since the table was based on current data, we started calculating the base figure value with inflation to find the cost in 1986, the year when the plant is scheduled to start operating and incurring those costs. We then added the costs for 1986 until 2025 to find the total cost of operating and maintaining the pollution control equipment. Hope this helps to wet your appetite and cause a detailed inquiry into the figures given by the applicant.

RLB

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************************************
     BASE AMOUNT:        $124,623,000
 INFLATION FACTOR: 1.090
  PERIOD OF YEARS: 45
    STARTING YEAR: 1930
      IMPACT YEAR: 1936 *
************************************

              YEAR NO DOLLARS
              ==== == =================
              1980  0      $124,628,000
              1981  1      $135,844,520
              1982  2      $148,070,527
              1983  3      $161,396,874
              1984  4      $175,922,593
              1985  5      $191,755,626
            * 1986  6      $209,013,632
            * 1987  7      $227,824,259
            * 1988  8      $248,329,096
            * 1989  9      $270,678,715
            * 1990 10      $295,039,799
            * 1991 11      $321,593,331
            * 1992 12      $350,536,735
            * 1993 13      $382,035,096
            * 1994 14      $416,472,755
            * 1995 15      $453,955,303
            * 1996 16      $494,811,230
            * 1997 17      $539,344,295
            * 1998 18      $537,885,232
            * 1999 19      $640,794,957
            * 2000 20      $698,466,503
            * 2001 21      $761,328,438
            * 2002 22      $829,848,052
            * 2003 23      $904,534,377
            * 2004 24      $985,942,471
            * 2005 25    $1,074,677,293
            * 2006 26    $1,171,398,249
            * 2007 27    $1,276,824,091
            * 2008 28    $1,391,738,259
            * 2009 29    $1,516,994,702
            * 2010 30    $1,653,524,225
            * 2011 31    $1,802,341,405
            * 2012 32    $1,964,552,131
            * 2013 33    $2,141,361,823
            * 2014 34    $2,334,084,337
            * 2015 35    $2,544,151,982
            * 2016 36    $2,773,125,660
            * 2017 37    $3,022,706,969
            * 2018 38    $3,294,750,596
            * 2019 39    $3,591,278,150
            * 2020 40    $3,914,493,134
            * 2021 41    $4,266,797,571
            * 2022 42    $4,650,809,352
            * 2023 43    $5,069,332,194
            * 2024 44    $5,525,626,591
            * 2025 45    $6,022,932,934
                         --------------

     GRAND TOTAL:    $71,435,027,064
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United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

ER-81/2261

JAN 5 1982

Mr. Theodore Bisterfeld
EIS Project Officer, Region IV
U.S. Environmental Protection Agency
345 Cortland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Bisterfeld:

We have reviewed the draft environmental impact statement/state analysis report for the proposed St. Johns River Power Park, Duval County, Florida, and have the following comments.

General

Impacts associated with construction of the plant at the Eastport site include significant loss of wetland habitat, degradation of water quality, and potential impacts on threatened or endangered species. In view of the presence of these species, formal consultation pursuant to Section 7 of the Endangered Species Act is underway between EPA and the Fish and Wildlife Service. The final statement should indicate the status of the Section 7 procedures. W-49

A total of 1600 acres of various habitat types are present at the project site, and approximately 289acres (17 percent) are wetlands. Of this total, approximately 84.3 wetland areas (30 percent of the wetland total) will be eliminated through filling with leachates from solid waste disposal and/or project dredging.

In addition, the description and maps of the proposed transmission line corridors provided in the DEIS do not allow a complete review of the potential impacts. It is also unclear whether construction of fill roads for maintenance of the transmission lines will be required. The final statement should contain this information. W-50

There is no discussion of potential flood stages at either the generating station site or the Blount Island coal terminal. It appears both sites could be affected by hurricane-induced tidal surges. The final statement should assess this issue. W-51

The DEIS presents four alternatives for generating electricity which require lesser amounts of fuel oil than are currently being burned by JEA. Some of these alternatives may have less impacts on wetlands and related fish and wildlife resources and may therefore be preferable to the proposed project. The available information, however, does not permit a comprehensive analysis. W-52

Water Quality

Page 4-30, Paragraph 3. The St. Johns River currently exceeds State Water Quality Standards for certain heavy metal parameters. However, we question the rationale for seeking variances from these standards. Continued variances for these contaminants only serve to compound impacts of the pollutants on fish and wildlife resources. W-53

Elutriate tests indicate that dredged material will exceed State Standards for antimony, cadmium, copper, lead, mercury, oil and grease, and silver. These materials, if removed from the river bottom by dredging and then reintroduced into the water column by spoil disposal return effluent, will adversely impact aquatic organisms of the St. Johns estuary. In an effort to reduce the impacts on the water quality of the St. Johns, the following preliminary recommendations should be considered.

(1) Dredging would be best conducted during the late fall and winter months to reduce heavy metal uptake by organisms.

(2) The spoil disposal areas should be large enough to maximize retention time and particulate settling.

(3) The spoil area design should possibly include a system of quarter dikes with the effluent directed through each pond in a series. Multiple recycling of the effluent through the settling process may allow for further elimination of contaminants from the effluent.

(4) Use of flocculants (pH control) in the spoil disposal area to precipitate fine sediments and heavy metals from the water column. W-54

Page 5-33, Last Paragraph. The final statement should discuss the toxicity effects from total residual chlorine and impacts of free available oxidants and total residual oxidants on water quality. The DEIS does document mitigation measures which may be considered to reduce potential adverse impacts on receiving waters. W-55

Page 4-38, Last Paragraph. The potential for contamination of groundwater from leachates originating in the solid waste disposal areas may contribute 100-500 pounds of heavy metal per year into Browns Creek, a valuable salt marsh. These loadings may cause reduced fecundity and increased mortality in invertebrates, as well as increased heavy metal concentration in higher-level consumer organisms. The net result would be severely reduced productivity of this unaltered marsh area.

To avoid this unacceptable impact on fish and wildlife, we recommend thata landfill areas be lined with impervious liners or that drainage reclamation system be constructed beneath these areas. W-56

Fish and Wildlife Coordination Act

The St. Johns River is the largest river in Florida and produces and supports tremendous numbers of birds, fish, shellfish, mammals, reptiles, and amphibians.

While project design may minimize losses of wetland habitat, no plan for compensation of unavoidable wetland losses is proposed in the DEIS. Suitable mitigation measures include, but are not limited to:

(1) Management of remaining wildlife areas (upland and wetland) to maximize value to fish and wildlif. W-57

(2) Restore or rehabilitate by construction of wetlands of equal acreage and value to those lost through construction

(3) Acquire land in fee title to be set aside for wildlife management and managed more intensively for fish and wildlife purposes.

Since a Section 404 permit under the Clean Water Act of 1977 would be required for wetland filling, the Fish and Wildlife Service would be providing comments to the Corps of Engineers pursuant to the Fish and Wildlife Coordination Act (16 USC 661, et seq). In order to meet those requirements, the following comments are offered as a guide in further project development.

The Fish and Wildlife Service recommends a suitable mitigation package be developed for inclusion in this project. At this point in project development and review, it is not possible to identify the alternatives for an acceptable mitigation plan in any specificity. Accomplishing the definition of alternative mitigation plans and selecting the most appropriate one will require a combined cooperative effort involving the two sponsoring utilities, the Corps of Engineers, and the fish and Wildlife Service, and other appropriate reviewing agencies. This effort should begin immediately if it is to be completed at anytime near that when the final statement is released and subsequent permitting decisions made. W-58

As a preliminary guide to the likely recommendation of the Fish and Wildlife Service on this matter, we would probably oppose issuance of any Federal permits unless an area equal to the wetland area to be lost (84.3 acres) would be set aside and wetland area created therein if none exists, or if a wetland area of this size exists, it be improved to a degree equal to tha of the habitat slated for destruction.

In addition, water quality of Browns Creek and the St. Johns estuary may also be degraded by leachates from solid waste disposal and/or project dredging. Engineering designs to prevent contamination of water bodies by heavy metals, oil, grease and other pollutants should be incorporated into the project. The Fish and Wildlife Service would oppose granting of variances from State Standards for the spoil disposal area effluent W-59

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These comments on the draft statement do not preclude further comments on any Federal permit applications as required by the Fish and Wildlife Coordination Act. The Fish and Wildlife Service is committed to work on this project to avoid delays and we urge early consultation with the Area Manager, 15 North Laura Street, Jacksonville, Florida 32202.

We hope these comments will be helpful to you in the preparation of a final statement.

Sincerely,

Bruce Blanchard, Director
Environmental Project Review

[illegible]
JAN 07 19[illegible]
REGION IV EPA

F

[illegible]

P. O. Box 8127, 5526 Arlington Road, Jacksonville, Fl 32211 (904) 743-

FLORIDA LUNG ASSOCIATION, NORTHEAST BRANCH
The "Christmas Seal" People

ADVISORY BOARD
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POSITION STATEMENT
OF
NORTHEAST BRANCH, FLORIDA LUNG ASSOCIATION
REGARDING
COAL-FIRED GENERATION OF ELECTRICITY

The Northeast Branch Board of the Florida Lung Association recognizes this nation's need to reduce its dependence on foreign oil. It is our concern, however, that plans to achieve this independence give equal attention to the health effects of alternate forms of power generation. In seeking alternate means of energy production, our first recommendation is an ongoing search for nonpolluting sources outside of fossil fuel usage.

Since the Jacksonville Electric Authority (JEA) plans to construct a coal-fired generating facility in the Duval County area, our position would favor this construction provided the following conditions are met:

1) JEA's Kennedy and Southside Generating Stations must have specific operating conditions as part of the site certification in order to preclude sulfur oxide violations, W-60

2) JEA must install and monitor a telemetry system at the Springfield playground in order to measure potential violations of the sulfur oxide standards, W-61

3) JEA must have on hand, or easily available, a supply of low sulfur fuels, oil and coal, W-62

4) JEA cannot operate the coal-fired unit unless they strictly adhere to the Federal standards. If a violation occurs, the strictest fine must be imposed, W-63

5) We endorse the construction of two sulfur oxide and two particulate monitoring sites in addition to the existing sites to be operated or funded by JEA. Data from these sites should be made immediately available to the authorized agencies, and W-64

6) JEA must provide adequate funds for maintenance of the pollution control equipment every year the plant is in operation. W-65

William R. Fryar

William R. Fryar, Ed.D., Chairman
N.E. Environmental Protection
Committee

F

by:
Mrs. Shirley Rogers [illegible]

I am concerned about the drinking water in the vicinity of the proposed coal-fired plants.

During a period of drought when restrictions are put on how much water can be used and at which times of the day it can be used, how can you arbitrarily say JEA may use as much as 7.6 millions gallons of water on any day as long as the yearly average is no more than 5.1 million gallons? W-66

What is to keep JEA from using 7.6 million gallons on those dry days when our acquifer is already low? W-67

What is to keep salt water from getting into our drinking water? W-68

What will you do if JEA does use more water than is allowed? What penalty or penalities will be imposed? Who will comprise the board to check the water usage? Residents of Heckscher Drive? or the immediate area? W-69

How can you insure that JEA will not use water from the acquifer when the acquifer is below level? W-70

How close to the JEA is the nearest Water Management District Representative? Is he close enough to enter the property daily if necessary? If not, what are the chances of appointing a representative from among those who live in the immediate vicinity? W-71

Another concern is the noise pollution from the proposed coal unloading facility at Blount Island. Have any tests been made in other areas relating to the loss of hearing over a period of time due to increased noise? W-72

Regarding Blount Island. Recently tides were 2 to 3 feet above normal, and many yards in the area across from and near Blount Island were under water for several hours each day. Some homes even had water in them. W-73

Can you be sure that drainage and runoff from the lined coal pile on Blount Island will not be washed into the River and subsequently into the yards of nearby residents or even into their homes when tides are this high? W-74

Will the drainage pond be so situated that tidal waters will never reach it? W-75

Will the drainage pond be so treated that stagnant water will not be there to hatch mosquitoes and other insects? W-76

My neighbors have seen the endangered Wood Stork flying over Blount Island. If a rookery were to be found there, what would be the environmental implications? W-77

Mrs. Shirley Rogers
5512 Heckscher Drive
Jacksonville, FL 32226

MEMORANDUM

To: U. S. Environmental Protection Agency,
Florida Department of Environmental Regulation

From: Robin Leigh,
6026 Heckscher Drive,
Jacksonville,
Fl. 32226.

COMMENTS ON DRAFT EIS/SAR ON JEA/FPL SJRPP

A. Position

I recommend that the issance of the NPDES Permit and the FDER Site Certification be deferred at least until:

1. The JEA has demonstrated that substantial economic benefit to the citizens o f Jacksonville will accrue from SJRPP construction; in particular, it must be shown in verifiable terms that energy costs will be lower with SJRPP than without. Unless such economic benefit exists, there is no justification for the unavoidable environmental impacts.

2. That no reasonable alternatives remain to be examined and that no alternative can be shown to provide equivalent energy capacity and oil saving at a lesser environmental cost. If a less damaging alternative exists, based on any criteria, it must be implemented in preference to SJRPP.

3. Numerous deficiences in the Draft EIS/SAR document are corrected and questions arising therefrom are satisfactorily resolved. The SJRPP site is an extremely sensitive one and poses problems not necessarily addressed by current standards because of the peculiar site characteristics; it must nevertheless be the responsibility of the applicant to address all impacts which can be identified in advance and to demonstrate an ability to mitigate damage, whether it arises from regulated emissions or otherwise.

It should be noted that more than one economic analysis of SJRPP shows that it will increase the cost of electricity substantially; that a reasoned program of conservation and shifting heating loads away from electricity has been arbitrarily excluded from consideration; that environmental resources at the site are already stressed by pollution, in some cases to the applicable statutory limits.

B. SPECIFIC COMMENTARY ON DRAFT EIS/SAR

Referances are made to Chapter/Section/Subsection numbers in the Draft EIS/SAR document.

1.4.2.1

Two modes of transportation are available, similar to the other sites principally considered- rail and barge/rail. W-81

1.4.2.2

The Eastport site was poorly rated on both economic and environmental grounds. Studies by United Engineers showed that Eastport had serious economic as well as environmental drawbacks, mostly as a result of transmission cost and enhanced environmental protection measures. W-82

1.5.3

USEPA has not examined all reasonable alteratives to the project; the adoption of unnecessarily restrictive criteria (from FPSC) arbitrarily precluded examination of some alteratives (specifically conservation) which were identified at the scoping meeting. W-83

Figure 2.2-4

This figure (or another one like it) should also show the 1% annual probability storm high water line; solid waste disposal area B (see Fig 2.2-2) is mostly below this level. W-84

2.2.7.1

Why is the 10-year 24-hour storm precipitation maximum an acceptable design criterion? The plant is designed to operate for 40 years, the waste piles will remain indefinitely. Since it is also likely that precipitation maxima will occur concurrently with storm high water levels, waste is likely to be widely distributed over the surrounding wetlands rather that being flushed promptly downstream. One such occurrence could cause long-term damage to both animals and vegetation.

The lining material for ponds must be specified in terms of performance criteria. W-85

2.2.8

How will a 60ft high pile be maintained above the level of the ground water table? Some areas intended for disposal are likely to have a water table so high (1 - 2 feet) that the pile will be compressed below the water table. The relationship between ground water at this level, adjacent sensitive surface water and underlying shallow aquifers is such that a try-it-and=see method of waste disposal represents an unacceptable risk of virtually permanent contamination. W-86

2.3

Page 2-30, site selection criteria:

- Site costs at Eastport are less than in Clay County, but plant costs would be higher because of the geographical position, resulting in higher transmission cost.
- EAstport IH zoning is not really compatible with power plant development; the JAPB's unwillingness to approve the required exemptions led to the re-zoning of the site to GU.
- The JAPB was on record as opposing the Eastport site.
- Air quality is a serious obstacle to licensing the Eastport site.
- The Eastport barge facility is large, expensive ($103M) and according to FPSC not necessary; it is therefore an unjustifiable impact on the environment.

2.5.2.3

Chloride emissions from the cooling towers must be addressed as an air pollution source; use of brackish water in cooling towers is a relatively untried system and must be treated with great concern rather than ignored for lack of FAAQS criteria.

2.5.5.3

Unlined storage of FGD sludge is unacceptably risky; by the time a problem with leaching is detected, irreversable contamination of ground water will have occurred.

2.5.7.1

Problems of plant orientation are simply functions of the unsuitablility of the site as a whole.

2.6.1

USEPA analysis of alternatives must not be limited to those identified by FPSC. All reasonable alternatives must be considered by law.

2.6.2 and 2.6.3.1

There is no need for alternative technology to be implemented by 1987. FPSC found that capacity requirements were met without SJRPP until 1991,; this greatly enhances the potential saving from conservation by improved efficiency of appliances by allowing ten years for natural replacement.

* (This portion of Robin Leigh's written comments has been typed in order to produce a legible copy)

2.6.3.2

Solar water heating should be supplemented by other demand-reducing methods: e.g.,

- insulation;
- gas rather than electric backup for solar systems;
- high-efficiency appliances. W-93

3.1.1.1

The site is frequently affected by sea-breezes in spring and summer, which shift the prevailing SW wind to SE during afternoon hours. Briefly strong winds (40 mph and over) frequently occur in squalls; these winds contribute significantly to TSP in air and would increase fugitive dust emissions. W-94

3.1.3

A concurrent project, the Dame Point Bridge, must be considered in air quality models. The bridge ramps will be less than 2 miles SW of SJRPP, with tall gates and upgrade traffic. W-95

3.2

A variance for SJRPP would defeat the purpose of having water quality standards. The need for a variance is a function of the unsuitability of the site and none should be granted. W-96

3.3.2.1

1966 water usage is not a true picture. Major water use projects have changed the pattern in the last 15 years. In particular, all the wells identified in Appendix M, Inventory of wells, were completed after this date. W-97

3.3.3.2

More study of the impact of withdrawal from the Floridan aquifer is required. The lack of chloride contamination cannot be guaranteed; a north-south fault (breach) between upper and lower zones is associated with high chloride levels about 5 miles south of the site. W-98

3.5.1.1

Water quality is already is problem, and Class III standards are periodically exceeded. Eastport is therefore unsuitable as a site for further concentrations of pollutants. W-99

3.8.1.6

The viewshed of SJRPP represents a major incursion of industrial structures into areas not presently affected. NGS is not typical of the area, being the only industrial structure with a significant viewshed within a 2 mile radius. The SJRPP will be two-fold increase in height with the addition of massive cooling towers higher than any solid structure in Duval County. These considerations are contrary to the JAPB St. Johns River Corridor recommendations, which seek to preserve the aesthetic value of the adjacent marsh and river views. W-100

3.10.1

This noise survey ignores intermittent load noises emitted by power plants. Residents within two miles of NES are subject to disturbance (usually at night) by steam blow-off and boiler blow-out. These events are infrequent but highly disruptive; the proximity of SJRPP would place a double burden of disruption on the same population. W-101

3.12.2

The lung cancer study failed to eliminate environmental factors other than asbestos and wood dust as contributors to the high mortality rate. W-102

4.4.21

The well inventory is grossly inadequate; a comprehensive census of wells is required. A sample section containing 18 inventoried wells has in fact at least 66 deep wells, in domestic use. Using this ratio of inventoried to actual wells, 242 wells may have drawdowns of 2 to 4 feet. At the maximum rate of pumping these wells may experience drawdowns in excess of 4 feet, which would leave these wells with inadequate pressure to supply domestic faucets. The JEA should be required to install the pumping equipment necessary to maintain the water supplies of affected users.

Since contamination of the shallow aquifer would be essentially irreversible, no avoidable risks (such as experiments with unlined storage cells) should be taken. The potential for irreversible impact is indicative of poor site selection. W-103

4.6.1.2

Noise impacts will occur with servicing of each unit, both an installation and during major boiler maintenance. W-104

4.4.2.2

The only significant industry within one mile is NGS but there are numerous residences within 1-2 miles of the plant. The frequency of disruptive noise at these residences would be roughly doubled. W-105

4.7.1.1

Unavoidable impacts on rare, threatened and endangered species show the unsuitability of the site for power plant development. W-106

4.7.2.1

Decreasing pollutant levels in surface water above acute toxicity levels for some species should not be permitted. If this happens, then the site is unsuitable. W-107

Chloride deposition on vegetation (especially sea salt) requires careful study; the relationship between natural deposition and precipitation is important. An increase from .41 $mg/m^2/hr$ to 1.31 $mg/m^2/hr$ is a very large increase, with potential for affecting soil adsorption, runoff and erosion as well as direct destruction of some plants. W-108

2.10.1.2

SJRPP construction is not consistent with existing land use; only limited sections actually contain industrial development. Water resources occupied by SJRPP would be unavailable for port-related industry and to that extent SJRPP would dilute the port-related industrial designation; the JAPB, in contrast with the Jacksonville Planning Department does not endorse the SJRPP as being consistent with the 2005 Comprehensive Plan. W-109

4.11.1.2

Roads leading to SJRPP are essentially rural; it is inappropriate to apply urban traffic density standards. The costs of delay, accidents and traffic-related pollution will be borne entirely by local residents. W-110

5.1.1

FAAQS $_2$ standard was violated in 1951 without SJRPP; the Eastport site will exacerbate this problem. W-111

5.1.2

St. Johns R. is already at and periodically above Class III standards; the Eastport site is therefore unsuitable for further discharges. W-112

5.1.3

Floridan Aquifer

An accurate inventory of wells, including old un-permitted wells is required. Serviceable wells must be guaranteed to existing water uses, and especially domestic potable water uses.

Shallow Aquifer

Water is used for potable water within ½ mile of waste disposal areas. It is also used for dairy forming purposes where Floridan Aquifer water is unacceptable, mostly because of H_2S. Contamination by leachate would be irreversable and cannot be risked. W-113

5.1.4

The aquatic community is already stressed; commercially important species are affected. An additional increment of pollution should be avoided. W-114

5.1.5

Exceptional noise generation (steam blowoff) occurs during maintenance. Nightime activities at NGS periodically cause disruption noise; SJRPP would roughly double the frequency of disruption. W-115

5.2.2.2

JEA has failed to remedy fish impingement problems at NGS over a period of three years. The track record does not suggest that immediate changes will be forthcoming. "Recommend" should read "require".

It should also be noted that the City's fishing pier is located less than ¼ mile from the NGS intake flume, and is the nearest recreational facility to SJRPP. W-116

6.1

Even with the restricted criteria, viable alternatives exist. In all probability, SJRPP will cost its customers more than the do-nothing option. Theefore--

1. The social and environmental impacts are not offset by overriding economic benefits;
2. SJRPP cannot be licensed at this time since all reasonable alternatives have not been examined. W-117

6.3

The criteria for acceptability of alternatives are not pertinent to the project. W-118

6.4

The necessary permits and licences should not be issued at this time because-

- SJRPP is not required for reasons of capacity;
- the conservation alternative has not been addressed;
- future alternatives may be precluded on financial grounds because of the cost of SJRPP ($2.3 billion should enough to spend on power). W-119

Additionally, there must be no relaxation of impermeability requirements for ponds and storage. Also, it should be an operating requirement to use surface water for FGD systems in the event that gypsum cannot be sold. W-120

F

3.2 RESPONSES TO WRITTEN COMMENTS

This section provides the responses by USEPA to the numbered written comments in Section 3.1. The responses are given in the same order as the comments were received by USEPA. Where necessary, comments which are duplicated by different speakers are cross-referenced to avoid repetition.

Response to Comment by US Department of the Air Force:

W-1: No response required.

Response to Comment by the Florida Department of Transportation:

W-2: No response required.

Response to Comments by Offshore Power Systems:

W-3: Since publication of the Draft SAR/EIS, JEA has decided not to use a coal shuttle train to convey coal from Blount Island to SJRPP. Instead, a closed conveyor belt system will be employed. The conveyor system has not yet been designed, but it is expected to parallel the existing transmission ROW between the NGS and Blount Island. If the conveyor system is elevated above Heckscher Drive, there should be no impacts on traffic movement during operation and only minor, short-term impacts during construction.

W-4: Refer to response to comment W-3.

W-5: Refer to response to comment W-3.

W-6: No response required.

W-7: The coal transloading facility on Blount Island will utilize Best Available Control Technology (BACT) for dust suppression. BACT for the Blount Island facility includes both wet suppression and baghouse filters. In addition, due to the relatively low emission release height and the small amount of emissions, little interaction between the coal facility emissions and other sources in the area should occur.

Response to Comments by Federal Emergency Management Agency:

W-8: In order to address the comment, the most recent information concerning floodplains on the project site has been obtained. This information includes the 1977 FEMA floodplain map as well as additional detailed, site-specific information generated by the JEA. Figures 7 and 8 summarize this information in graphic form.

As shown in Figure 7, several areas of the main site are located within the historical (FEMA-defined) 100-year floodplain. These areas include a portion of the zone associated with the rail loop and small parts of solid waste disposal area A (and possibly area B) as well as other areas. A large part of the coal unloading facility on Blount Island is also located within the historical (FEMA-defined) 100-year floodplain.

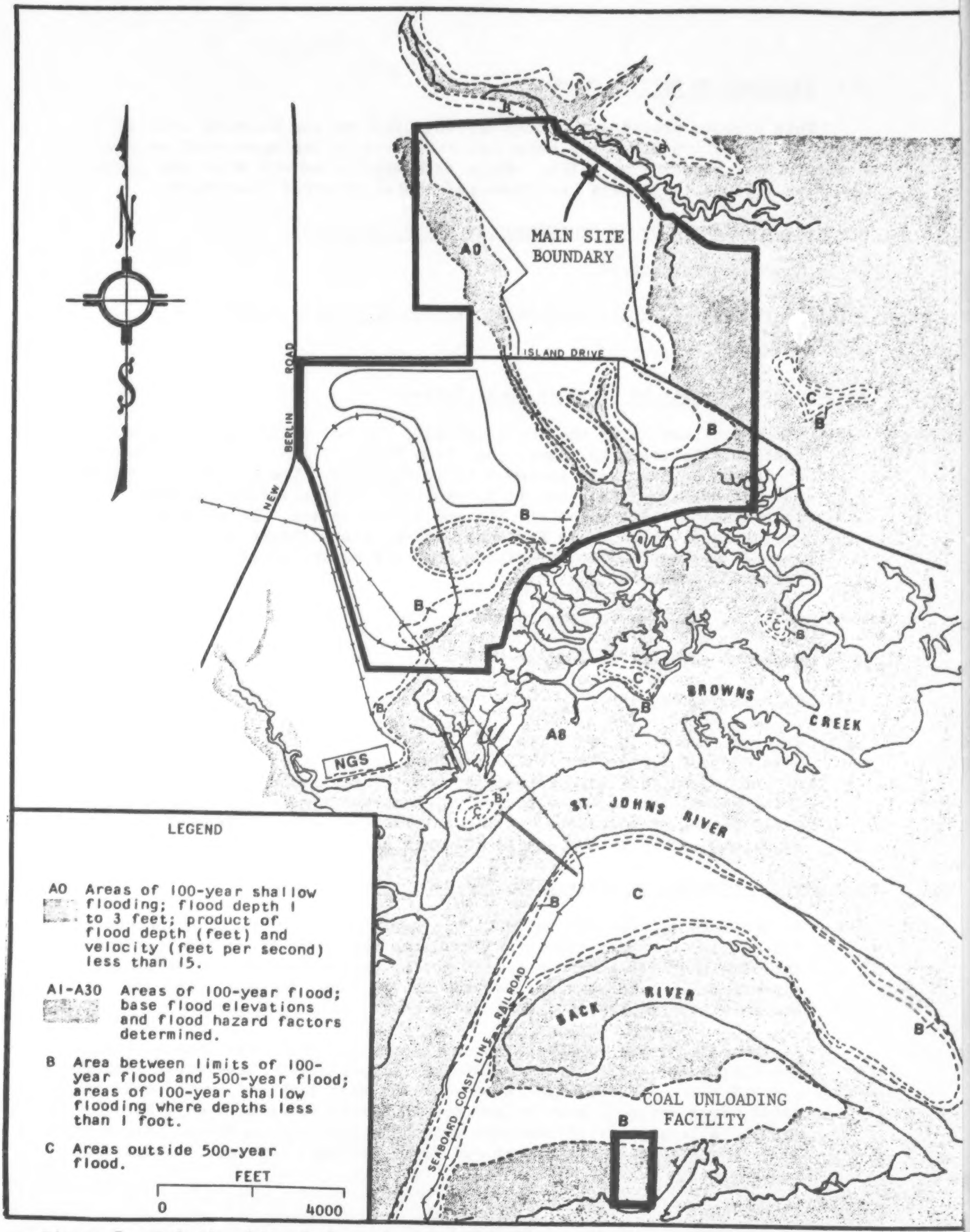
N
S
MAIN SITE BOUNDARY
A0
ISLAND DRIVE
NEW BERLIN ROAD
B
C
BROWNS CREEK
A8
NGS
ST. JOHNS RIVER
SEABOARD COAST LINE RAILROAD
BACK RIVER
COAL UNLOADING FACILITY
LEGEND
A0 Areas of 100-year shallow flooding; flood depth 1 to 3 feet; product of flood depth (feet) and velocity (feet per second) less than 15.
A1-A30 Areas of 100-year flood; base flood elevations and flood hazard factors determined.
B Area between limits of 100-year flood and 500-year flood; areas of 100-year shallow flooding where depths less than 1 foot.
C Areas outside 500-year flood.
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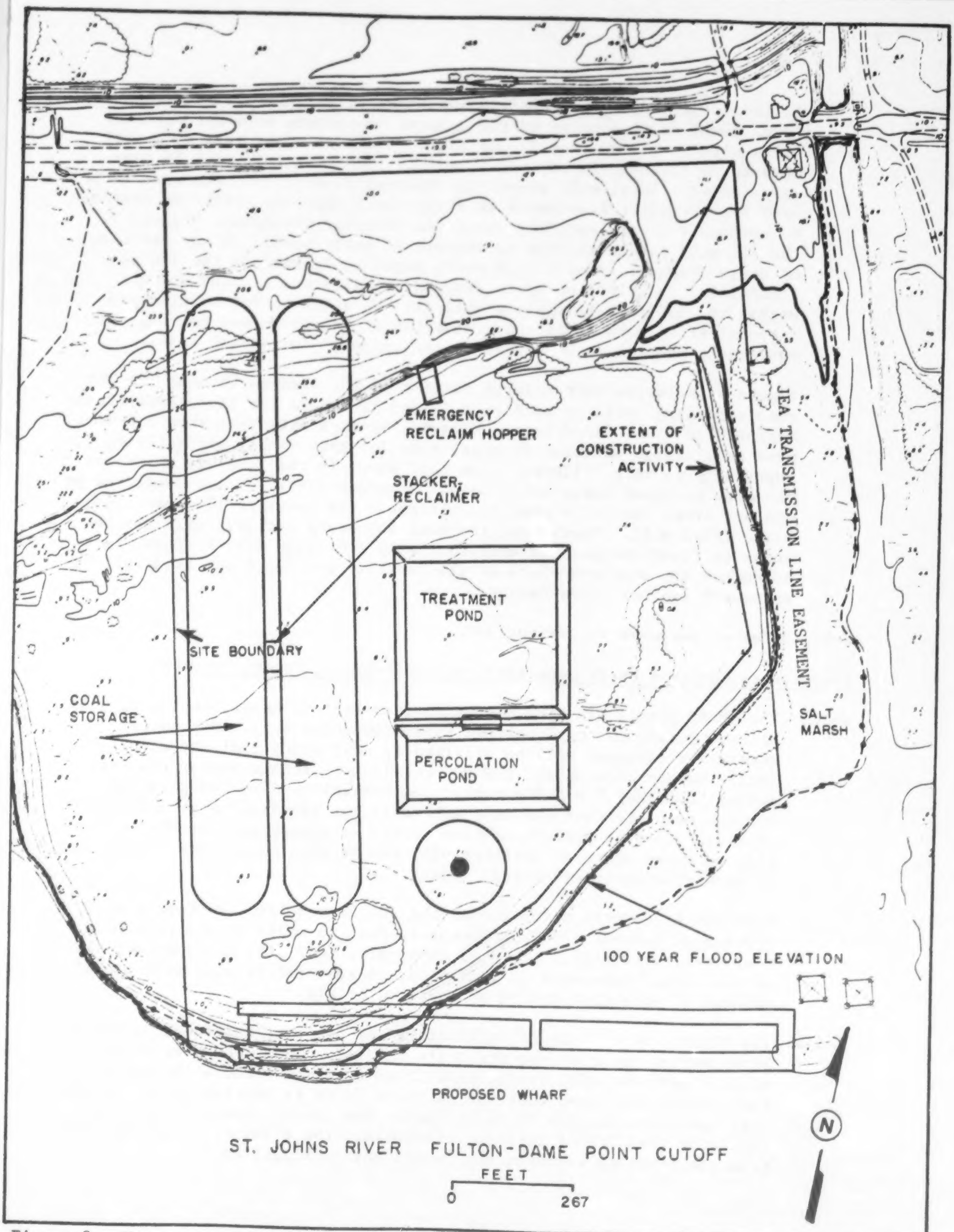
Figure 7. Relationship of the main site and Blount Island to the historically (FEMA-defined) 100-year floodplain. Shaded areas indicate extent of historically defined 100-year flood.



EMERGENCY RECLAIM HOPPER
EXTENT OF CONSTRUCTION ACTIVITY
JEA TRANSMISSION LINE EASEMENT
STACKER-RECLAIMER
TREATMENT POND
SITE BOUNDARY
COAL STORAGE
SALT MARSH
PERCOLATION POND
100 YEAR FLOOD ELEVATION
PROPOSED WHARF
N
ST. JOHNS RIVER FULTON-DAME POINT CUTOFF
FEET
0
267

Figure 8. Most recent (1981) map of Blount Island showing actual existing topography and 100-year floodplain in relation to coal unloading facilities.

As indicated on the flood hazard map, some of the facilities within the SJRPP would be floodprone if the present topography were not altered. Areas within the 100-year floodplain in the main plant rail loop will have to be filled prior to construction. The rail loop will be constructed at a level well above the 100-year floodplain. The area to be used for the first five years of solid waste disposal (refer to response to comment W-34) is entirely above the 100-year floodplain (Figure 7). The JEA will not be allowed to dispose of solid wastes in any portions of waste disposal areas A or B which might be located in the 100-year floodplain. Portions of waste disposal areas A and B which are not within the 100-year floodplain will only be approved for solid waste disposal after completion and evaluation of the five-year testing and monitoring program as described in the response to comment W-34.

Figure 8 indicates that a large portion of the area to be used for the coal unloading facility on Blount Island is within the historical (FEMA-defined) 100-year floodplain. However, because this same area has been used as a dredge material disposal zone for many years, the existing topography is very different from that shown in the FEMA map which was based on outdated topographic data. A recent (1981) survey conducted by JEA has shown that this area is well above the existing 100-year floodplain (Figure 8). Therefore, the coal unloading facility will not be prone to flood damage. In addition, a 10 foot high dike currently surrounds the southern shore of the facility and would act as a further safeguard against flood damage.

W-9: Refer to response to comment W-8.

Response to Comments by US Department of Agriculture, Forest Service:

W-10: The NPDES permit has been conditioned so that no herbicide use will be allowed during the construction phase (Appendix 6.1). Mechanical mowers for clearing will be utilized in most areas that are accessible during maintenance of all ROW's. For limited access areas, JEA will employ "CLEARWAY," a USEPA registered herbicide. The USEPA registration requires that the user adhere to the required rates and method of application to prevent adverse health or ecological impacts. Adherence to these approved measures will ensure that no adverse impacts due to herbicide application will result.

Pursuant to Federal regulations, the JEA is required to prepare a Spill Prevention Control and Countermeasure Plan in order to mitigate potential effects of spills of toxic chemicals, fuel oil, or other materials on the site. Adherence to this plan, as required by law, will minimize effects of potential spills of these materials.

W-11: The Florida Department of Agriculture and Consumer Services, Division of Forestry, has reviewed the Draft SAR/EIS. In a letter to USEPA dated 7 December 1981 (refer to written comments W-18, W-19, and W-20), that agency concluded that the Eastport "site is located in one of the least productive areas in Duval County for timber growth." The FDAC concluded that from a forestry standpoint, the elimination of the site from the forestry resource base would not be significant.

W-12: Refer to response to comment W-11.

W-13: Refer to response to comment W-11.

W-14: Refer to response to comment W-11.

W-15: Refer to response to comment W-11.

Response to Comments by the Sierra Club:

W-16: The following paragraphs present USEPA's response to the comments by the Sierra Club concerning selection of the alternatives analyzed in the Draft SAR/EIS.

The Sierra Club has stated that USEPA did not adequately examine energy conservation as an alternative to construction of the proposed SJRPP. On the contrary, conservation was considered and conservation technologies were carefully evaluated in the Draft SAR/EIS. Reasonable conservation goals for electric utilities in the State of Florida were established by the Florida Public Service Commission (FPSC) under the Florida Energy Efficiency and Conservation Act of 1980 (FEECA). In its determination of the need for the SJRPP, the FPSC factored into the utilities' demand projections the maximum conservation goals under FEECA. The underlying requirement of attaining the FEECA goals in the determination of the need for the project is presented in Section 1.5 of the Draft SAR/EIS and in the following quote from the FPSC Final Order:

> "Should the Commission's FEECA goals governing the growth of seasonal kilowatt demand be achieved, and we are of the opinion that they can reasonably be achieved, additional generating capacity for the purpose of insuring adequate supplies of power and energy to peninsular Florida electric consumers does not appear to be required until 1991. Similarly, JEA and FP&L do not appear to require additional generating capacity for reliability purposes until 1991 and 1989 respectively, should they achieve their respective FEECA seasonal kilowatt demand goals."

The FPSC has issued orders concerning achievement of the FEECA goals by the proposed project. These are Order No. 9552, Order Proposing Rules, and Order No. 9634, Order Adopting Rules. Two statements contained in these Orders are worth emphasizing. The first, from Order 9552, states:

> "Each of the goals developed pursuant to the Act assumes that it is in the interest of all to do those things which are cost-effective, and the goals have been set assuming very aggressive marketing programs to achieve high penetration of the best available cost-effective technology and other measures."

The second, from Order 9436, states:

> "These goals represent a starting point for establishing energy conservation programs for all electric utilities. There is no absolute assurance that these goals will be fully achieved within the expected time frames, although the best efforts by the electric utilities to achieve them will be required."

These excerpts indicate that the FPSC considers the FEECA goals on which the SJRPP load projections were based to be an aggressive, realistic basis for attainment of energy conservation in Florida.

In addition to consideration of general energy conservation goals, specific alternatives were evaluated both by the FPSC in the need hearings and by USEPA in the development of the Draft SAR/EIS. The alternatives considered by the FPSC are identified in the following quote from its Final Order regarding the SJRPP:

> "On May 22 and 23, 1981, public hearings were conducted in Tallahassee, at which time the Commission undertook a thorough investigation and analysis of the issues pertinent to a final decision of the need for SJRPP Units 1 and 2 to displace oil fired generation in peninsular Florida. The potential alternatives to the continued use of oil to insure an economical supply of bulk electrical power and energy to JEA, FPL, and Peninsular customers which were evaluated included: construction of SJRPP; construction of additional 500 kv transmission lines to Georgia and within Florida, or acceleration of currently planned lines for the purpose of importing increased amounts of 'coal-by-wire' power and energy; conversion of existing oil-fired units to coal; coal-oil mix (COM) or coal-water mix; purchases from Georgia Power's Vogtle nuclear units; additional conservation in excess of the FEECA goals; and continued use of imported oil. The economic feasibility of each alternative was assessed, as well as the impact of each upon the reduction of the consumption of imported oil in the State of Florida."

These statements clearly indicate that conservation was considered by the FPSC. These conservation features were also included in the Draft SAR/EIS alternatives analysis.

The Sierra Club questioned the analysis of renewable resources presented in the Draft SAR/EIS. Appendix AA of the Draft SAR/EIS addressed the issue of renewable resources. Section 2 of Appendix AA, "Technology Screening" (pages 5 through 27), addressed various energy resources which are considered to be renewable. These included the following:

- Refuse power
- Solar hot water heating
- Solar central power generation
- Photovoltaic conversion
- Ocean thermal energy conversion
- Wind power
- Hydroelectric power
- Biomass (wood power)
- Geothermal power

As noted in Section 2.6.2 of the Draft SAR/EIS, USEPA's analysis evaluated these alternatives as well as others on the basis of implementability, technical feasibility, and oil displacement to identify those which should be considered in greater detail. Based on this analysis, the renewable resources which were included for further analysis were refuse power and solar hot water heating. These two technologies were included in one of the final alternatives (#1) and the alternative was compared with the SJRPP on the basis of costs and environmental impacts. Both Alternative #1 and the alternative technologies proved to be prohibitively expensive (ref. Appendix AA).

In conclusion, USEPA feels that available alternatives were fully analyzed in the Draft SAR/EIS and that conservation was adequately addressed. Furthermore, the alternatives are consistent with the goals of the State energy conservation plan and need for the project as defined by the FPSC.

Response to Comments by the Heckscher Drive Fish Camp, Marina, and Business Association:

W-17: This comment refers to the discharge of heavy metals, particularly mercury, from the proposed SJRPP and the effect of these discharges on the water quality of Browns Creek and the St. Johns River and the effect of any potential bioaccumulation of mercury on the local fishery. The sources of wastewater discharge from the proposed SJRPP are described in Sections 2.2.6 and 2.2.7 and shown in Figure 2.2-8 of the Draft EIS.

During the construction phase of the project, treated wastewater from construction runoff and effluent from the sanitary waste treatment system will be discharged via the runoff sediment control pond to Browns Creek. This wastewater will contain essentially none of the pollutants of concern such as mercury. During the operation phase all wastewater will be treated and discharged to the St. Johns River via the NGS discharge channel except during heavy storm events when discharges may occur from sediment ponds serving the coal piles and landfill sites. When these periodic overflows from the sediment ponds occur, the runoff will go to Browns Creek.

There will be no direct discharge of coal pile runoff from the Blount Island facility. All coal piles will be lined and the runoff will be chemically treated prior to discharge into a percolation pond. However, the treated runoff collected in the unlined percolation pond will enter the existing near-surface soils on Blount Island and eventually migrate to the Fulton-Dame Point Cutoff.

The impacts of the operation phase wastewater discharges on the water quality of the St. Johns River are described in Section 4.3.2.2 of the Draft EIS. Browns Creek could possibly be impacted by leachates from the solid waste disposal areas, but these potential impacts are unquantified and are to be mitigated by the implementation of the solid waste disposal and monitoring program. The discharge of treated wastewater from the SJRPP into the St. Johns River is of concern because several of the pollutants in the SJRPP waste stream are already present in concentrations in the River causing periodic violations of Florida Class III water quality standards. Because it was recognized that such violations of water quality standards occur already, JEA petitioned FDER for variances from water quality standards for several pollutants. If these variances are granted, there will be a certain degree of additional degradation of water quality in the plant mixing zone and subsequently, increased stress on aquatic life in the vicinity of the plant discharge.

The one-year monitoring study conducted by JEA during the preparation of the Site Certification Application showed that aluminum, copper, cyanide, iron, mercury, oil and grease, silver, total coliform, and (possibly) residual chlorine occurred in concentrations in the vicinity of the SJRPP which exceeded state water quality criteria with varying frequency (see Table 4.3-2 in the Draft EIS). The FDER has determined that there were widespread violations of the standards for these parameters in the back channel of the St. Johns River, the Dames Point Channel, and in tributary creeks in the immediate vicinity of the proposed SJRPP. Elevated concentrations of several pollutants including mercury are also known to occur in and above the Jacksonville metropolitan area. These periodic violations now occur and form the basis of the request for variances by JEA. The actual causes of the violations are not known at the present time, however.

Wastewater discharges from the SJRPP will increase the concentration of pollutants of concern in the plant's 31 acre mixing zone. Because of the potential effects of bioaccumulation on the quality of the fishery, mercury is of particular concern. Mercury will be discharged primarily from two sources; cooling tower blowdown and flue gas desulfurization (FGD) wastewaters. The cooling system will withdraw water from the NGS discharge channel, concentrate it 1.5 times by evaporation, and discharge blowdown back to the NGS discharge channel. This will increase the concentration of mercury in the mixing zone, but will result in no net increase in the quantity of mercury in the River. However, the FGD wastewaters contain mercury and other pollutants derived from burning coal. The variance from Class III water quality standards requested by JEA was based on the expected quality of wastewater generated by the various systems and FDER is considering the magnitude of the variances which may be granted based on the JEA estimates. The mercury contribution of the FGD system alone is of particular interest because at a discharge concentration of 70 ug/l as projected by JEA, it would constitute, under average conditions, more than 99% of the mercury from the plant processes and about 3.7% of the total mercury in the river under low flow conditions. USEPA has analyzed the literature available on FGD systems and has found that a more appropriate estimate of the concentration of mercury in the FGD waste is an order of magnitude lower, about 7 ug/l. The predicted concentration of mercury in the mixing zone using worst case operating conditions (minimum dilution flow via NGS and average discharge from SJRPP) and an FGD system discharge of 7 ug/l mercury is 0.76 ug/l as seen in Figure 9 (Envirosphere 1982). This concentration is a reduction by more than 50 percent of the JEA's predicted POD mercury concentration of 1.67 ug/l using 70 ug/l as FGD system input. Using 7 ug/l case for the FGD system contribution alone, the mercury concentration at the POD can be reduced from 16 times the water quality standard of 0.1 ug/l to 7 times the standard. This, of course, is during the periods when the ambient River quality itself exceeds the mercury standard by 6 times, a situation observed during pre-application monitoring. Also notable is the reduction in concentration at the boundary of a 31 acre mixing zone from 0.7 ug/l to

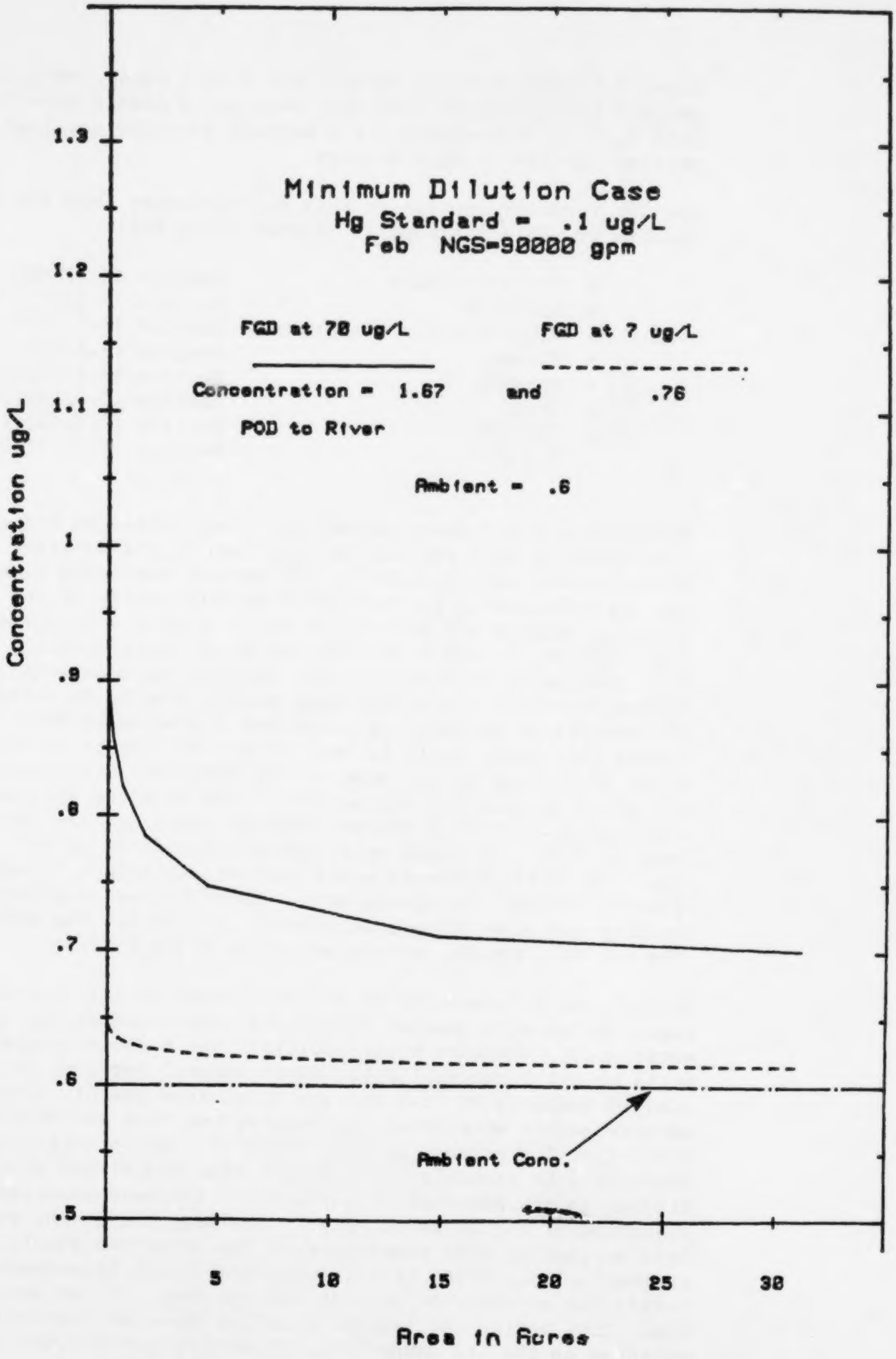


Figure 9. Mercury concentrations in the NGS/SJRPP mixing zone for FGD waste concentrations of 70 µg/l and 7 µg/l of mercury and an ambient river concentration of 0.6 µg/l (Envirosphere 1982).

about 0.61 ug/l for the 70 ug/l and 7 ug/l cases, respectively. With ambient conditions at 0.60 ug/l mercury, a mixing zone concentration of 0.61 ug/l is approximately a 2 percent increase compared to the 17 percent for the 70 ug/l mercury.

The JEA formally applied to FDER for variances from the following water quality criteria included in Chapter 17-3, FAC:

• Oil and Grease	Section 17-3.061(j)
• Aluminum	Section 17-3.121(2)
• Total Residual Chlorine	Section 17-3.121(10)
• Copper	Section 17-3.121(11)
• Cyanide	Section 17-3.121(12)
• Iron	Section 17-3.121(16)
• Mercury	Section 17-3.121(18)
• Silver	Section 17-3.121(27)

Variances for all these parameters except chlorine are currently being considered by FDER and must be approved by the Governor and Cabinet. Variances for copper, silver, and mercury are being considered for only two years following plant startup pending review of the results of the bioassay program and additional water quality monitoring as required in the NPDES Permit and State Conditions of Certification. The variances for these parameters would apply only to the area within the assigned mixing zone (the maximum allowed mixing zone is 31 acres). Based on the results of mathematical modeling conducted by FDER, it was concluded that there would be very little difference in levels of the above parameters at the edge of the NGS/SJRPP discharge mixing zone and all areas outside the mixing zone. The modeling also showed that this conclusion would hold whether ambient water quality outside the mixing zone exceeded the State water quality standards or not. This implies that the SJRPP discharge would have little effect on ambient water quality outside the mixing zone. Nevertheless, degradation of water quality and added stress on aquatic life within the mixing zone and at the POD will result, as stated in the Draft SAR/EIS.

Mercury can be concentrated in the tissues of fish and other aquatic organisms at much greater levels than are found in the surrounding environment. Mercury bioaccumulation has been investigated on a limited basis by the Jacksonville Bio-environmental Services Division. In a limited sampling of fish and shellfish from the St. Johns River, no mercury levels were found approaching the Food and Drug Administration's limitation for mercury in fish flesh of 1 mg. per kg. This indicates that there is probably not a health risk associated with existing conditions in the River or with the small increase associated with the operation of the proposed plant. However, due to the small amount of data available, this assessment of the situation should not be regarded as conclusive. USEPA is obtaining additional bioaccumulation data to verify the accuracy of present information. If, as expected the fish flesh data verify the limited existing data, no significant impact is expected on the St. Johns River fishery from the SJRPP mercury discharge. Further, the decision on the NPDES permit will be made after these data have been obtained and evaluated.

Due to concern over the expected mercury concentrations in the discharge mixing zone several actions will be taken to assess the effects of the proposed SJRPP.

- JEA will be required by their NPDES Permit to conduct a bioassay test program on their effluent to determine aquatic toxicity.
- JEA will be required to investigate bioaccumulation of mercury in the mixing zone.
- JEA will be required to annually reevaluate the FGD system effluent and determine if newer technology has become available which would allow a reduction in the amount of mercury discharged from the system. In addition, JEA will be required to design the plant to enable segregation of the FGD wastewaters for greater treatment should USEPA determine it to be warranted.

Response to Comments by Florida Department of Agriculture and Consumer Services:

W-18: No response required.

W-19: A complete construction erosion control plan was included in the SCA/EID (JEA/FP&L 1981). This plan included measures to control erosion such as contouring of the site, mulching, berming, and seeding. In addition, JEA is currently preparing a complete landscape plan for the site which includes planting of shrubs and other types of vegetation. This will also help minimize erosion during the operational phase of the SJRPP.

W-20: Although the forestry value of the site is poor, many trees occur there which would be of value as firewood. However, it would be difficult for JEA to allow public access to the site because of the potential for liability suits to be brought against the Authority should accidents occur to private citizens during tree cutting operations. JEA has decided not to institute a public program for this reason. A non-public program for salvaging valuable hardwoods will probably be instituted by JEA during site clearing.

Response to Comments by US Department of Housing and Urban Development:

W-21: No response required.

W-22: If the fly ash is transported, it will be wetted before loading onto trucks to improve the handling characteristics and reduce fugitive emissions. Also, trucks will be covered during transport to reduce spillage.

Response to Comments by US Department of Interior, Fish and Wildlife Service (Jacksonville Area Office):

W-23: The Florida Game and Fresh Water Fish Commission has issued an informal statement concerning the feasibility of relocation of the gopher tortoise and eastern indigo snake (FGFWFC 1982). The Commission stated that gopher tortoises are abundant on the site and indigo snakes and other gopher burrow commensals potentially occur on-site. These species will virtually be eliminated in the vicinity of site construction. Because such species are legally protected, a means of minimizing potentially adverse impacts must be found.

One possible mitigative measure would be to require JEA to purchase additional natural areas that meet the habitat requirements of the impacted species. In addition, gopher tortoises, indigo snakes, and other State-listed burrow inhabitants encountered during construction could be captured and released just beyond the perimeter of the area to be developed.

The Game and Fish Commission noted that relocation is often proposed as an expedient means of dealing with jeapordized animals. They consider wildlife relocation to be generally biologically unsound, however. Animals often cannot be transplanted to already occupied habitats because of the possibility of parasite or disease transmission, disruption of existing social orders, increased competition resulting in intolerable stress for resident as well as relocated populations, or other potential problems. The Commission would not necessarily reject the idea of relocation, but before accepting such a plan would have to evaluate a detailed relocation proposal and be kept appraised of progress. In any case, only those areas once harboring these species but now vacant because of over-exploitation or other factors would be even minimally acceptable as reintroduction sites. Follow-up studies to any approved relocations should also be undertaken to determine the success or failure of the effort. If JEA decides on a relocation plan, the State would be the ultimate authority in granting approval.

W-24: No response required.

W-25: No response required.

W-26: No response required.

W-27: No response required.

Response to Comments by Defenders of Wildlife:

W-28: As the result of a formal Section 7 Consultation, the US Fish and Wildlife Service has officially determined that the construction and operation of the main plant site, coal unloading facility, and transmission lines (including dredging) will not jeopardize the continued existence of the manatee or adversely modify the manatee's critical habitat (Comment W-23). However, the USFWS did express specific concern about possible effects of dredging on manatees (Appendix 6.3). Potential effects of dredging will be mitigated by incorporation of several mitigative measures into the Section 10/404 permit (Appendix 6.3). The US Army Corps of Engineers has agreed to condition the permit to include certain of these measures. The Corps will request that dredging be limited to late fall or winter months which is the period of lowest manatee activity. The Corps will also require that the Quarantine Island area be utilized for dredge material disposal. This area is sufficiently large to store the dredged material, and the large size of the area will ensure adequate time for settling and detoxification of the dredged material (Refer to response to comment W-54 for a more complete discussion concerning mitigation of adverse effects due to dredging)

W-29: The proposed project will not adversely affect bottlenose dolphins in the St. Johns River (dolphins were observed in the vicinity of the plant during the manatee survey conducted during the completion of the SCA/EID). Thermal discharges to the River will not pose a threat to dolphin populations because the actual increase in the heat load will be extremely small and would be limited to a relatively small mixing zone of 17 acres. Wastewater discharges will be rapidly diluted in the relatively small mixing zone (Refer to response to Comment W-17) and will not adversely affect local dolphin populations which might be migrating into or out of the estuary. Since the SJRPP will use the NGS discharge as its source of cooling water, virtually no entrainment effects will be produced by the plant. Thus, no impacts on the estuarine food chain would result that could ultimately affect dolphins. JEA is making a continued effort to make the fish removal system at NGS more efficient. The added impingement caused by the SJRPP could have adverse effects on local fish populations (page 4-79 of the Draft SAR/EIS). It is highly unlikely, however, that this would adversely affect dolphins. JEA is currently conducting a fish impingement study and is attempting to improve the efficiency of the fish return system.

Response to Comments by US Public Health Service, Department of Health and Human Services:

W-30: The comment has been noted. The appropriate missing pages concerning public health have been included in Appendix 6.5.

W-31: Two unit trains per day are expected to deliver coal to the SJRPP. Due to the present level of use, two trains per day probably would have a minimal effect on ambient noise levels in the vicinity of SJRPP. The plan to use shuttle trains to move coal from Blount Island to SJRPP has been dropped. A new proposal by JEA calls for the use of a conveyor system to deliver coal to SJRPP from Blount Island rather than shuttle trains. The conveyor system will be covered so that noise and air pollution will be minimal.

W-32: The City Health Department and Florida Department of Environmental Regulation do not require a formal written vector control plan to be submitted. During the Site Certification process, however, FDER considers vector control as a factor in reviewing the design of solid waste disposal areas.

W-33: The projected impacts of the proposed withdrawal on surrounding wells are presented in Section 4.4.2.1 of the Draft SAR/EIS. Certain revisions to the information presented in the SAR/EIS are presented in Chapter 2.0 of this Final EIS. Analysis of recent potentiometric surface maps (September 1980) shows that artesian flow from the Floridan Aquifer occurs in the area at a head of approximately 15 to 20 feet above land surface. Thus, with an average case drawdown of 9 feet at the nearest well, it would appear that no wells in the area would lose artesian flow solely as a result of average pumpage for the proposed plant. It is recognized that the rates of discharge will decrease due to the SJRPP which will cause pumped wells to operate longer to produce a given quantity of water. It is unlikely pump level adjustments will be necessary so long as artesian flow conditions exist. For those users currently utilizing artesian wells, the flow could be substantially reduced, possibly necessitating the use of pumps to deliver the same quantity of water. The general level of the Floridan Aquifer has been falling by approximately one-half foot per year since the 1940's. Some wells in the area may lose artesian flow at some time in the future regardless of whether the SJRPP is built or not. Nevertheless, the project could cause the impact to occur sooner.

W-34: The proposed NPDES Permit has been conditioned by USEPA to allow JEA a period of five years to conduct a solid waste disposal test program. The program is intended to demonstrate the environmental acceptability and feasibility of JEA's proposed long-term solid waste management plan. Following the five-year test program, USEPA will reevaluate the proposed long-term solid waste management plan and require any changes necessary to assure compliance with State groundwater quality standards and any applicable Federal groundwater quality standards.

During the five-year test program, all solid waste disposal will be limited to an area of approximately 100 acres located between the plant rail loop and Island Drive (Figures 2 and 7). This is one of the areas of highest elevation on the SJRPP site and will provide the greatest possible separation from the groundwater table. It is also more than large enough to accommodate all of the solid waste generated by the plant during the first five years of operation even if none of the solid waste disposal material were marketed as gypsum.

The solid waste disposal test program will be carried out entirely within the 100-acre area shown in Figure 2. The program will include three major features: (1) a leachate test program in a fully lined five-acre test cell; (2) a program for disposal of unmarketable solid wastes in several adjacent unlined 10-acre cells (employing physical stabilization of these wastes and soils at a minimum); and (3) a detailed geological/ groundwater study of all solid waste disposal areas on the site.

The test program should determine the effectiveness of the disposal cell design in minimizing leachate contamination of area groundwater supplies. The five-acre test cell will be provided with a sand blanket, underdrains, and an impermeable plastic liner in order to allow recovery and measurement of leachate. The test cells will be surrounded by a lined ditch to allow sample collection and measurement of runoff. Underdrains will convey leachate to a common point for sampling and flow measurement. Other monitoring systems (e.g., rain gaging, observation wells) will be installed as required. The upper surface of the waste pile will be compacted, sloped, and seeded to minimize infiltration. All leachate and runoff generated at the test facility will be directed to an existing plant wastewater stream for treatment, discharge, or reuse.

All solid waste materials which are not used for the test program and/or which are not marketed will be disposed of in adjacent ten-acre cells. The cells will be constructed well above the water table and the bottom material as well as the waste will be compacted in layers to minimize leachate. Berms and ditches will be constructed around the cells to divert site runoff away from the landfill area. Runoff from the cells themselves will be collected and treated in sedimentation ponds and routed to the chemical wastewater treatment system. When the layers of waste material and cover soil have reached a height of about 60 feet, the cells will be capped off with gravel and soil. The cells will then be sloped and seeded.

The third major element of the test program will be a detailed study of the geologic and groundwater characteristics of the site. The objective of this program will be to relate solid waste disposal and leachate transport to existing groundwater conditions. This program will include groundwater monitoring in the five-year test cell disposal areas as well as in solid waste areas A and B (Appendix 6.1). Due to concern over the potential for the leaching of trace metals from the waste disposal cells without impermeable liners, special care must be taken to assure that the bottom layers of each cell are not in contact with the near surface groundwater. This is of particular concern in disposal areas A and B (Figure 7) since they are in lower areas with somewhat higher water tables. The site investigation will include continuous monitoring of groundwater elevations in all solid waste disposal areas in order to determine the historical high elevations and durations. In addition, testing will also be conducted to determine the possibility of an interconnection between the near surface groundwater and the shallow rock aquifer (Also refer to response to comment P-21 concerning hazardous waste handling).

Based on the results of the leachate tests, the monitoring of the unlined cells, and the further investigations of disposal areas A and B, JEA will submit a long-term plan to USEPA for the disposal of solid wastes at the SJRPP. The plan will be submitted after the first five years of monitoring and will cover the remaining 35 years of the plant's expected life. USEPA must review and approve the plan prior to use of either disposal areas A or B by JEA. Appropriate measures including (if necessary) liners, chemical fixation, or other means will be utilized for each portion of the site in order to assure that groundwater contamination does not occur. In order to further assure protection during the interim of the five-year test program and for the 40-year duration of the project, JEA will be required by the FDER Conditions of Certification to monitor the groundwater in both the surface groundwater table and the shallow rock aquifers at a distance no more than 200 feet downgradient of each cell. If at any time the test or monitoring programs indicate a potential for violation of groundwater quality standards, the cell(s) will be sealed, relocated, or its operation will be altered to correct the problem.

Response to Comments by Mr. Mat Roland:

W-35: Refer to the response to comment W-17.

Response to Comments by Stella D. Andrews:

W-36: No response required.

W-37: No response required.

W-38: No response required.

W-39: No response required.

W-40: Refer to response to comment W-17.

W-41: Refer to response to comment W-33.

Response to Comment by Lee Pelej:

W-42: It is unlikely that drawdown of the Floridan Aquifer will affect freshwater wetlands because the shallow aquifer system will not be affected by withdrawals. This is because the shallow aquifers are separated from the deeper Floridan Aquifer by the Hawthorne Formation, which acts as an aquiclude (Section 4.4.2.1 of the Draft SAR/EIS).

Response to Comments by "Intervenors":

W-43: Refer to response to comment W-17.

W-44: The recent drought and water use controls announced by the St. Johns River Water Management District (SJRWMD) do not materially alter the conclusions reached in the Draft SAR/EIS regarding the effects of the proposed groundwater withdrawal at SJRPP. First, according to information from the SJRWMD, the water use restrictions imposed in Duval County are only voluntary on the north side of the St. Johns River where the SJRPP is located and specifically do not apply to power plants anywhere in the County (Thompson 1982). Secondly, the drought experienced in northeast Florida in 1981 was rather severe and was estimated to be a once in 200-year to once in 400-year occurrence. As a result of the drought, the level of the Floridan Aquifer in the Jacksonville area declined by several feet leading to the imposition of water usage controls. The SJRWMD now reports that with the return of normal rainfall patterns, the level of the Aquifer has begun to rise again (Thompson 1982).

In spite of the drought, the conclusions reached in the modeling analysis should remain valid. The fluctuations in water level have all occurred within the same formation, so that factors such as transmissivity and leakance (which affect the model) would remain constant. Therefore, small changes in the level of the Aquifer would not change the validity of the drawdown estimates predicted by the SJRWMD model. The conclusions reached concerning the effect of the additional drawdown on surrounding wells also should not be significantly affected. With the aquifer level rising from its drought condition, it still appears unlikely that any of the surrounding wells would lose artesian flow solely as a result of the withdrawal proposed by JEA. The withdrawal would, as discussed in the Draft SAR/EIS, reduce the rate of discharge, thereby causing pumped wells to operate longer to produce the same amount of water and substantially reducing the production of artesian wells. Because general water levels in the Floridan Aquifer have been falling at a rate of approximately 0.5 ft/year since the 1940's, there would be a general decline in the productivity of artesian wells in Duval County in the future regardless of whether the SJRPP is built (Thompson 1982).

W-45: Refer to comment W-44.

W-46: The proposed project will result in the eventual filling or elimination of a total of 84.3 acres of seasonally flooded wetlands, including 1.5 acres of bottomland hardwood, 32.6 acres of cypress swamp, 22.7 acres of bayhead, and 27.5 acres of hardwood swamp (Section 4.7.1.1 of the Draft SAR/EIS). No salt marsh will be eliminated during construction since it has been determined that the areas of Blount Island which were originally thought to be impacted are located in a transmission line ROW and would actually not need to be eliminated.

The 84.3 acres of seasonally flooded wetlands represent about 34% of the total acreage (249 acres) of these types of communities on the site. The remaining areas of seasonally flooded wetland not affected by the site will be protected by a 200 foot buffer zone bordered by a fence. The original area to be fenced off has also been increased in order to provide additional protection to these areas from human intrusion. These areas and the salt marshes of nearby Brown and Clapboard Creeks will be futher protected during construction by collection of all runoff from open or filled areas in several sedimentation ponds. The NPDES permit (Appendix 6.1) has set effluent limits on the discharge from the main sediment pond in order to minimize impacts, specifically in the Browns Creek marsh. Furthermore, these same areas are not projected to be affected by drawdown of groundwater during operation since the Hawthorne formation effectively separates the surficial aquifers from the Floridan Aquifer (from which the SJRPP will take its groundwater). In conclusion, filling of seasonally flooded wetlands on the site and operation of the SJRPP will not result in a major adverse impact on adjacent wetlands. However, as stated in the Draft SAR/EIS, the eventual elimination of the 84.3 acres of seasonally flooded wetlands on the SJRPP during the life of the project will constitute the most important overall adverse impact on wetlands. This impact must be weighed against the social and economic benefits of the project.

W-47: The value presented in Table 2.5-6 of the Draft SAR/EIS for O&M represents the annual cost for operation and maintenance, but also includes the initial cost of the equipment spread over the projected life of the facility. The annual cost for O&M only is projected to be $68,498,000 (EBASCO Services, Inc. 1982).

W-48: No response required by USEPA.

Response to US Department of Interior Office of the Secretary:

W-49: The Section 7 consultation with the Jacksonville Area USFWS Office concerning the power plant, coal unloading facility, and transmission line corridor has been completed (Refer to comments W-23 through W-27). The results of the consultation indicate that the continued existence of Federally listed species which occur in the vicinity of the SJRPP or on the site would not be threatened by the proposed project. An addendum to the original Section 7 consultation has also been completed concerning the potential effects on Federally listed species due to dredging activities associated with the coal unloading facility and transmission line towers. A copy of this Biological Opinion is included in Appendix 6.3 of the Final EIS. It includes conditions that will be required in the Section 10/404 US Army Corps of Engineers permit in order to mitigate potential dredging-related impacts on Federally listed species. The conclusion of the Biological Opinion was that the continued existence of Federally listed species which occur in the study area would not be threatened by dredging activities if these measures are followed. The US Army Corps of Engineers agreed that certain of these measures will be instituted as a requirement of the Section 10/404 permit (Refer to response to comment W-54 for a more complete explanation of mitigation measures to be employed).

W-50: The transmission lines would parallel existing ROW's, so that no additional access roads would be required. Furthermore, the amount of clearing required will be minimal. Appendix O of the Technical Reference Document for the Draft SAR/EIS provided a detailed summary of transmission line impacts. In order to fully address the comment, the following excerpt from that discussion is provided:

> "The construction of two 230 kV transmission lines from the proposed site to the Normandy Substation and to the Fort Caroline and Robinwood Substations will be directly associated with power plant development. Following site certification approval, a right-of-way (ROW) alignment will be established. The preferred corridor includes an existing transmission line ROW from the Northside Station to the respective substations. For over 90% of the new ROW, it is anticipated that the existing ROW will simply be expanded by up to 150 feet to accommodate the new facilities. Where the existing ROW is not followed, a new ROW of up to 200 feet in width will be constructed."
>
> "The preferred corridors to the JEA's Robinwood and Normandy Substations include wooded wetlands with very little salt marsh found in the proposed plant to Robinwood section. The wooded wetland areas in the preferred corridor have been largely drained. Thus, ROW alignment would have little effect on corridor wetlands as a whole. No major wooded wetland stands would be completely cleared or bisected by new ROW construction. The largest undisturbed wooded wetland area to be affected is a cypress dome near the Normandy Substation. Assuming that the new ROW will be adjacent to the existing ROW, relatively little additional clearing would be required through this habitat (less than 150 feet)."
>
> "With proper construction care, salt marshes would not be adversely impacted by transmission line construction. Corridor vegetation consists of herbaceous species that do not impair the establishment and maintenance of a transmission line. By using

mats to support heavy equipment in the marsh, lasting damage to the marsh would be avoided. If towers must be located in a marsh, the marsh habitat would be disturbed only in the immediate tower foundation areas. This would result in temporarily increased turbidity levels. When construction in a particular area is complete, the mats would be removed and affected habitats would recover. Construction noise would temporarily disturb water birds feeding in nearby salt marshes."

"Impacts on upland communities would be greater in forested areas than in open habitats. ROW clearing would result in removal of all trees and brush in the ROW that could interfere with the safe operation of the transmission line. Wood and brush material removed would be disposed of in landfills, sold, or burned. Movement of timber harvesting and construction equipment is expected to churn, rut, and compact soil in wet areas. Increased erosion may result. Forested areas would be replaced by early secondary ecological successional stages. No major forest stands will be involved in ROW preparation and no chemical herbicides and pesticides are planned to be used during ROW preparation."

"The only areas of open water to contain transmission towers will be in Mill Cove. The entire width of the St. Johns River will be spanned without placing a tower in the open channel. New transmission tower locations will be east of existing towers in habitats exposed at low tide. Dredging (dragline) equipment will be brought into the Mill Cove area by barge via the existing channel. Efforts will be made to minimize sediment disturbances including barging in of equipment during high tide periods. Streams and channels will be spanned and, where necessary, culverts will be placed to avoid altering stream flow characteristics."

"The most important wildlife to be potentially affected by construction of the transmission lines and towers are colonial and raptorial bird species. Potential impacts to other wildlife species are not anticipated to be serious due to their relatively larger abundances or local absence."

"The special areas of wildlife importance include Blount Island and the NGS area. On Blount Island, spoil areas on and near the existing ROW have the potential to become nesting habitat for several species of shorebirds as well as least terns (Sterna albifrons). However, if construction takes place during the breeding season (April-August), these birds may be driven away from nesting areas. Similarly, the osprey (Pandion haliaetus) frequently nests in transmission towers and has nested in towers on Blount Island and in the salt marsh near the NGS. Construction in the areas of nesting terns and osprey will be avoided. Fresh spoil mounds left behind or introduced to the area may expand potential nesting habitat for the terns."

W-51: Refer to the response to comment W-8.

W-52: Potential impacts of each alternative on wetlands and related fish and wildlife resources were discussed in more detail in the Technical Reference Document for the Draft SAR/EIS. However, an in-depth analysis equivalent to that conducted for the Eastport site was not possible primarily due to the lack of adequate information concerning the FP&L Sanford Plant and other portions of the FP&L service area.

W-53: Refer to the response to comment W-17.

W-54: The USFWS has subsequently completed an addendum to the original Section 7 consultation (Refer to comments W-23 through W-27). The addendum concerns the potential impacts of dredging on threatened and endangered species. The results of this consultation are provided in Appendix 6.3. The USFWS concluded that if the appropriate mitigative measures are employed, the continued existence of Federally listed species in the study area will not be threatened. The US Army Corps of Engineers has agreed to require that certain of the recommended measures be instituted as a condition of the Section 10/404 permit. As requested by the US Fish and Wildlife Service, the US Army Corps of Engineers will require that dredging be conducted during the late fall and winter months which is the period of lowest manatee activity. The Corps has also determined that the Quarantine Island disposal area is more than large enough to contain the amount of dredge material resulting from the SJRPP project. Because of the large size of the disposal area, the Corps feels that quarter dikes are not necessary as a mitigative measure. The dredge material will be spread over a large area and the liquid fraction will have a long retention and settling time prior to discharge via a wier. These factors will allow for maximum settling time as well as flocculation of trace metals (and subsequently effective removal from the overflow discharge). The Corps will not require the applicant to utilize chemical flocculants in the spoil disposal area.

W-55: The Florida Department of Environmental Regulation is recommending denial of JEA's request for a variance for chlorine. The FDER is recommending that chlorine levels at the POD of the combined main discharge of the NGS/SJRPP be limited to 0.10 mg/l at all times and that chlorine concentrations not exceed 0.01 mg/l past the 17-acre instantaneous mixing zone (Appendix 6.2). The original limits given in the Draft SAR/EIS were 0.20 mg/l at the POD for a maximum period of 2 hours per day per cooling tower. The proposed NPDES Permit (Appendix 6.1) limits total residual oxidants (TRO) in the NGS/SJRPP discharge (NPDES 001) to 0.10 mg/l (instantaneous maximum) at the POD. Both the State and Federal limits are based on the Florida Water Quality Standards [17-4.244(4)] which prohibit a maximum pollutant concentration within an assigned mixing zone which exceeds the amount lethal to 50% of the test organisms in 96 hours (96-hr LC_{50}). The 96-hr LC_{50} of the blue crab of 0.10 mg/l was used to establish this limit within the mixing zone.

W-56: Refer to response to comment W-34.

W-57: Wetlands compensation has been formulated through interagency coordination with the JEA. It has been required as a condition of the NPDES permit (Appendix 6.1). The wetlands compensation will consist primarily of fencing off additional areas of land on the site in order to more completely limit public access (Figure 3). Fencing will be added along the full length of the property lines on Island Drive and also along a portion of the northwest corner of the site (Figure 3). By limiting access in this manner, remaining undisturbed areas (including both upland and wetland communities) within the property lines of the site will be protected. In addition to agreeing to the additional fencing, JEA has also agreed not to disturb the 1 acre of salt marsh located in Blount Island (Figure 4) that was originally slated for elimination. The original 200-foot buffer zone around all seasonally flooded wetlands remaining on the site following construction will also be maintained.

W-58: Refer to response to comment W-57.

W-59: Refer to the response to comment W-34.

Response to Comments from the Florida Lung Association:

W-60: The State Conditions of Certification for the SJRPP (Part I-E) (Appendix 6.2) specify the operational restrictions which JEA must follow to ensure that there will be no violations of the Florida Air Quality Standard for sulfur dioxide. Under maximum load conditions at SJRPP and NGS, the Southside Generating Station will be shut down.

W-61: No response required.

W-62: The sulfur content of the coal and oil used for SJRPP will meet the requirements specified in the PSD permit to ensure that no violations of the FAAQS or NAAQS for sulfur dioxide will occur.

W-63: No response required.

W-64: No response required.

W-65: No response required.

Response to Comments by Mrs. Shirley Rogers:

W-66: The use of groundwater at the SJRPP will be regulated as stated in Section III of the FDER Conditions of Certification. Groundwater will be required at the SJRPP for a variety of uses including operation of the FGD systems, potable water supply, fire protection, plant service water, and makeup to the boiler water demineralizer system. The largest single demand will be the daily average of 3.09 mgd required to run the FGD system. Periods of peak operation may occasionally occur when other water uses are required, increasing demand to a peak level (about equal to 7.6 mgd). Fluctuations in the groundwater demand of the power plant should be relatively minor, however, and peak demand situations should be of short duration (approximately 24 hours). It does not appear that the plant's peak demand would conflict with the current water use restrictions imposed by the St. Johns River Water Management District (SJRWMD). The restrictions on the north side of the River where the SJRPP is located are voluntary and power plants are specifically exempted from the restrictions at this time. For further discussion, refer to the response to comment W-44.

W-67: As noted in the response to comment W-66, the peak water demand of the SJRPP would be exempted from the current water use restrictions although internal plant recycling will be used to keep water use as low as possible. A provision has been included in the FDER Conditions of Certification (III-C) which could be used to establish limits to the drawdown caused by SJRPP. However, a problem with excessive drawdown is not likely to occur since the recent water shortage was not a common event. Estimates by the SJRWMD indicate that the recent drought was between a once in 200-year and once in 400-year occurrence (Thompson 1982).

W-68: Chloride intrusion into the Floridan Aquifer in the vicinity of the SJRPP was described in Section 4.4.2.1 (page 4-54) of the Draft SAR/EIS. It was noted that the wells at the SJRPP would be installed in such a way as to minimize chloride upconing. Nonetheless, the pumping of additional water from the Aquifer would contribute to an overall trend of gradual chloride increase which has been occurring for more than 30 years due to the extensive areawide use of groundwater. If chloride intrusion becomes a serious problem locally, the SJRWMD can require that SJRPP shut down its wells.

W-69: Limitations on the use of groundwater by the SJRPP are covered in Section III of the FDER Conditions of Certification (Appendix 6.2). JEA will be limited to pumping an average daily withdrawal of 5.1 mgd and a daily withdrawal of 7.6 mgd maximum. The utility will be required to operate and maintain a record of pumpage from each well and a continuous record of water levels in the Floridan Aquifer. Representatives of the SJRWMD and FDER will have the authority to come on-site to inspect the facilities and records at any time. Violation of restrictions or reporting requirements could be punished by revocation of JEA's authority to withdraw water from the Floridan Aquifer or other action deemed appropriate by FDER or the SJRWMD.

W-70: Provisions are included in Section III of the FDER Conditions of Certification to require JEA to reduce or cease its withdrawal of groundwater during emergency situations.

W-71: The St. Johns River Water Management District offices are located in Palatka. Representatives of the SJRWMD and FDER will be authorized to enter the site for inspections at any time. At this time there are no plans to designate any citizen representatives to perform inspections.

W-72: An assessment of noise levels at the Blount Island coal handling facility is presented on page T-23 of the Technical Reference Document. The maximum noise level experienced by the nearest receptor to the facility will be 43 dBA. This is 9 dBA below the existing noise level at the receptor and 27 dBA below the level USEPA considers as possibly harmful with continuous exposure.

W-73: No response required.

W-74: The drainage pond will be located above the 100-year floodplain on Blount Island. Therefore, no coal pile drainage or runoff will enter the River even during unusually high tides. The 10 foot high dike around the southern edge of the facility will add further protection against flooding. Refer to the response to comment W-8 concerning floodplain impacts.

W-75: The coal pile drainage pond would not be reached by tidal waters since it is located above the 100-year floodplain.

W-76: The drainage pond will be designed so that water continually percolates downward into the soil. Except for periods of high rainfall, there will usually be little water in the pond. Evaporation will further reduce the amount of standing water in the pond. These factors will reduce the use of the pond as a mosquito breeding area. In addition, the pond is very small in area as compared to available mosquito breeding grounds in the vicinity.

W-77: The nearest nesting colony of wood storks is located about 25 miles south-southeast of the site in southern Duval County. Because of the relatively industrialized and disturbed nature of Blount Island, it is unlikely that wood storks would nest there.

Response to Comments by Mr. Robin Leigh:

W-78: Refer to the response to public hearing comment P-22 for a discussion of the relative costs of each of the alternatives considered in the Draft SAR/EIS. Also refer to the response to written comment W-16 for a discussion of the achievement of conservation goals and analysis of alternatives. It was demonstrated in the Draft SAR/EIS that the SJRPP would be economically competitive with the other alternatives over the short run (through the year 2000) and that it would provide additional generating capacity now that would have to be provided at additional cost under the alternatives at some later date. Refer to Section 2.6.4 and Appendix BB of the Draft SAR/EIS for a more detailed discussion of the economic comparisons of the alternatives.

W-79: Refer to the response to comment W-78.

W-80: No response required.

W-81: No response required.

W-82: Refer to the response to public hearing comment P-4. The Eastport Site actually possesses several economic advantages.

W-83: USEPA conducted a completely independent evaluation of available alternatives based on the need for power as identified by the FPSC. This analysis was conducted in direct response to issues raised at the scoping meeting. Refer to the response to written comment W-16 for a discussion of the choice of alternatives analyzed in the Draft SAR/EIS.

W-84: Figure 7 illustrates the relationship of the site to the FEMA-defined historical floodplain. As shown in the figure, only a small area of solid waste area B is actually within the 100-year floodplain. Refer to the response to comment W-8 for details concerning floodplain boundaries and impacts of the project on floodplains.

W-85: USEPA Effluent Guidelines for the Steam Electric Power Generating Point Source Category defines the design basis for coal pile runoff as the 10-year, 24-hour storm. Specifically, this requirement is given in the Federal Register, Volume 39, Number 196, October 8, 1974 [Code of Federal Regulations, Title 40, Part 423.40 and 423.45 (promulgated)] and Federal Register, Volume 45, Number 200 [Code of Federal Regulations, Title 40, Part 423.15 (proposed)]. Runoff from higher intensity storms is expected to be extremely dilute and of little impact. The only two sediment ponds to be lined with plastic (polyethylene) include the main plant pond and the Blount Island coal pile runoff pond. The wastewater from these ponds will be treated prior to discharge. The sediment ponds to control runoff from the solid waste disposal areas will not be lined.

W-86: Refer to the response to comment W-34.

W-87: The site selection studies did show that transmission costs were higher at the Eastport site due to its location. The availability of two types of coal delivery (rail or barge) made the Eastport site more attractive, however, and outweighed the higher transmission cost in the judgement of JEA. Also, the Clay County Coalition was clearly opposed to the Clay County site and indicated that a lawsuit would result if JEA decided to build the SJRPP in that County.

The proposed SJRPP is, in fact, consistent with the present industrial land uses of the area and the IH zoning. The Jacksonville Planning Department, acting as staff to the Jacksonville Area Planning Board, determined the proposed project to be consistent with the policies and land uses of the Land Use Element of the 2005 Comprehensive Plan. The staff ruled that the proposed power plant facility meets the criteria for water-related industrial uses which is the anticipated use for most of this site according to the Land Use Plan Map. The use is also in compliance with zoning regulations pursuant to Ordinance 80-1290-700, adopted by the City Council on 24 February 1981, which rezoned the land for the power plant to GU (Government Use) at such time as the Jacksonville Electric Authority acquires fee simple title to the property.

Potential air quality impacts are addressed in Section 4.2 of the Draft SAR/EIS.

The impacts of the construction and operation of the Blount Island coal unloading facility are expected to be minimal with the exception of trace element loading to the River from the coal pile percolation pond. Sections 3.2 and 3.5 of the Draft SAR/EIS discuss the impacts of these loadings on the River.

W-88: Brackish water cooling systems are used at power generating stations in Florida and along other coastal areas of the U.S. The impacts of emissions from the cooling towers are addressed in pages 0-59 to 0-61 of the Technical Reference Document. The controlled particulate emissions from the cooling towers are predicted to be 8.4 grams per second. Refer to the response to comment W-108 for a summary of potential salt deposition impacts. In addition, USEPA is conditioning the proposed NPDES Permit to require that JEA conduct an 18-month salt drift study

(Appendix 6.1) which will include calculation of drift rates, ground level measurements of salt deposition, and estimates of biological impacts. Should problems with salt drift be encountered, suitable mitigation measures will be required by USEPA. Such increases could include use of better drift emission control by JEA.

W-89: Refer to response to comment W-34.

W-90: No response required.

W-91: Refer to responses to comments W-16, W-83, and P-22.

W-92: Refer to responses to comments P-22, W-16, and W-83.

W-93: No response required.

W-94: Air quality modeling performed for the SJRPP used actual meteorological data for Jacksonville and therefore reflects actual windspeeds and directions on an hourly basis. Rapid dispersion of pollutants occurs at high wind speed with highest concentrations occurring during calm wind conditions.

W-95: Refer to response to public hearing comment P-45.

W-96: Refer to response to comment W-17 concerning granting of wastewater variances and water quality impacts.

W-97: The groundwater usage figures presented in Section 4.4.2.1 of the Draft SAR/EIS were intended to present an overview of groundwater use in the entire region surrounding Jacksonville. They were not intended to represent the specific area around the SJRPP and were not used in the modeling of groundwater withdrawal impacts. The inventory of wells in the vicinity of the SJRPP was compiled to help characterize the local aquifers in terms of formation, water quality, and yield. The current (1980) water use of major users in the vicinity of the SJRPP was taken into account in the assessment of impacts.

W-98: Refer to response to comment W-68.

W-99: Refer to response to comment W-17.

W-100: Refer to response to public hearing comment P-46.

W-101: No response required.

W-102: Comment noted. No response required.

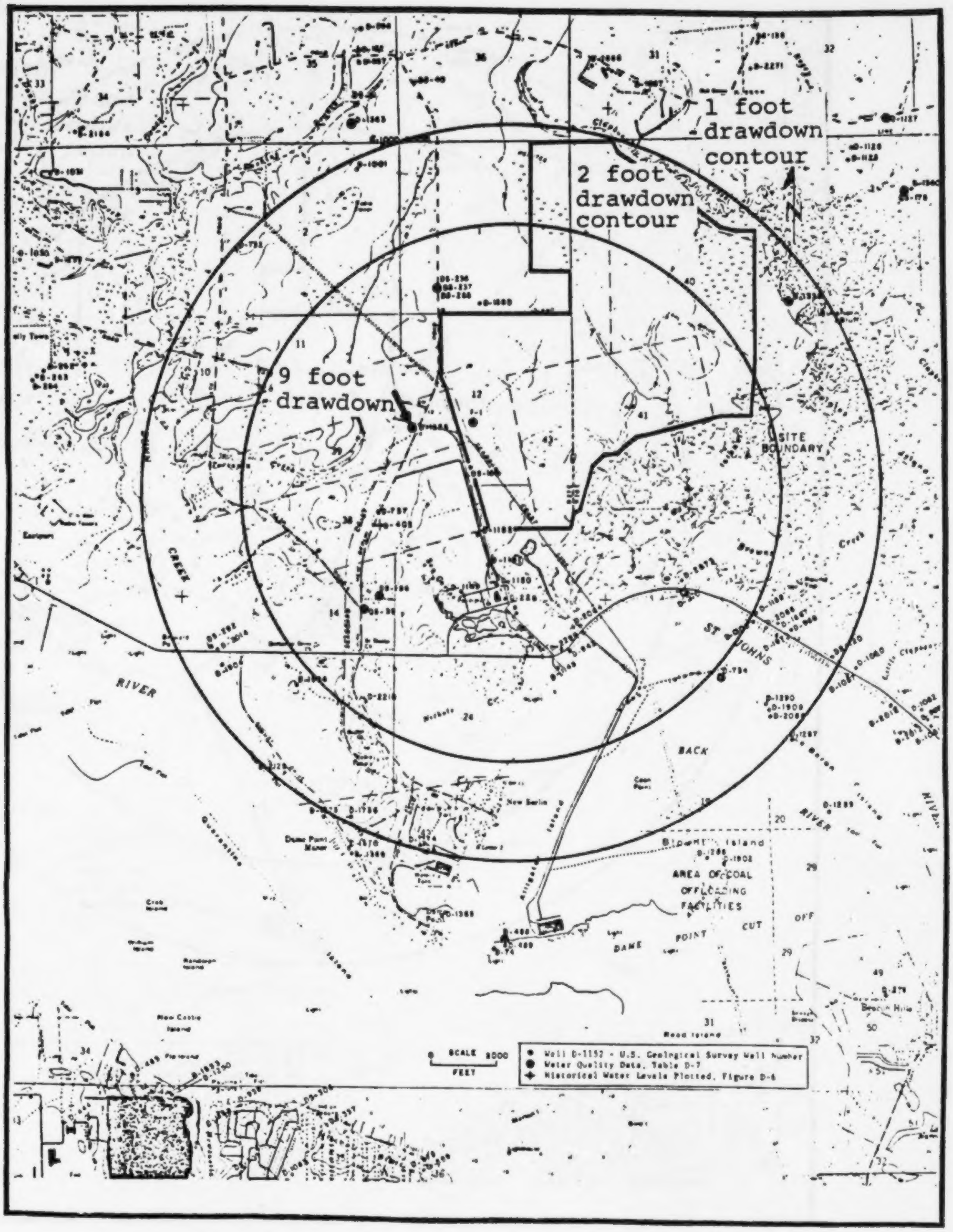
W-103: As noted in the response to comment W-96 above, the well inventory conducted for this study was designed to obtain hydrologic data in order to help characterize local aquifers and was not intended to identify every well existing in the vicinity of the site. It is recognized that in the vicinity of the SJRPP site, as well as elsewhere in the Jacksonville area, small diameter wells completed within the Floridan Aquifer and used for such purposes as lawn and garden irrigation are common. Whereas 65 or more private artesian wells have been reported along Heckscher Drive between wells D-2273 and D-1051, the USGS topographic map of the vicinity indicates approximately 65 individual homes in the same area. Thus it is conceivable that every private home in the vicinity of the SJRPP site may have at least one associated small diameter Floridan Aquifer artesian well. Using this as a working hypothesis, an estimate of the number of private domestic wells in the site vicinity can be made.

The maximum area of one foot or more of drawdown produced by the SJRPP water supply wells is estimated to be a circle of radius of approximately 14,400 feet or 2.73 miles. From the topographic base map used to develop the well inventory map (Figure 4.4-2 of the Draft SAR/EIS), there appear to be about 430 individual homes and 55 inventoried Floridan Aquifer wells within a 2.73 mile radius of the midpoint of the proposed Floridan aquifer production well field at the plant site.

Utilizing the number of private homes indicated on the topographic maps as an estimate of the number of private Floridan Aquifer wells within the site vicinity, it is possible to estimate the number of wells which might be affected by a given amount of drawdown induced by pumpage from the SJRPP production wells. Under conditions of average long-term production of 3,600 gallons per minute from the two wells at the plant site, nine wells could potentially be affected by drawdown of greater than 4 feet (Figure 10). Of those nine wells, five are associated with the Northside Generating Station, one is at the North Landfill, one is the Capital Concrete well (D-1255, the nearest well to the site), and only two (D-402 and D-737) would appear to be associated with private homes. An additional six inventoried wells and 60 potential Floridan wells associated with private homes could experience drawdowns in the range of 2 to 4 feet and 17 inventoried wells and 120 potential wells associated with private homes could experience drawdowns between 1 and 2 feet. Under conditions of maximum production of 5,400 gallons per minute for a short period of time (assumed to be no more than 24 hours), nine inventoried wells and seven potential wells associated with private homes might experience drawdowns of greater than 6 feet (Figure 11). An additional 41 inventoried wells and 400 potential wells associated with private homes could experience drawdowns of greater than 1 foot. (The estimate for the maximum pumping condition was incorrectly stated in the Draft SAR/EIS and is corrected here).

For wells with pumping equipment, the effect of this lowered head would be to slightly reduce the well discharge rates. Consequently, those wells would have to produce for a slightly longer period of time than they currently do in order to produce a given volume of water. For artesian wells, the rate of flow would fall somewhat as a result of the proposed SJRPP production, but the wells should remain in production until the regional decline in piezometric levels of the Floridan Aquifer falls below ground levels. In this event, pumping equipment would be required.

Refer to the response to comment W-34 concerning solid waste disposal.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Reed Island
New Castle Island
New Berlin
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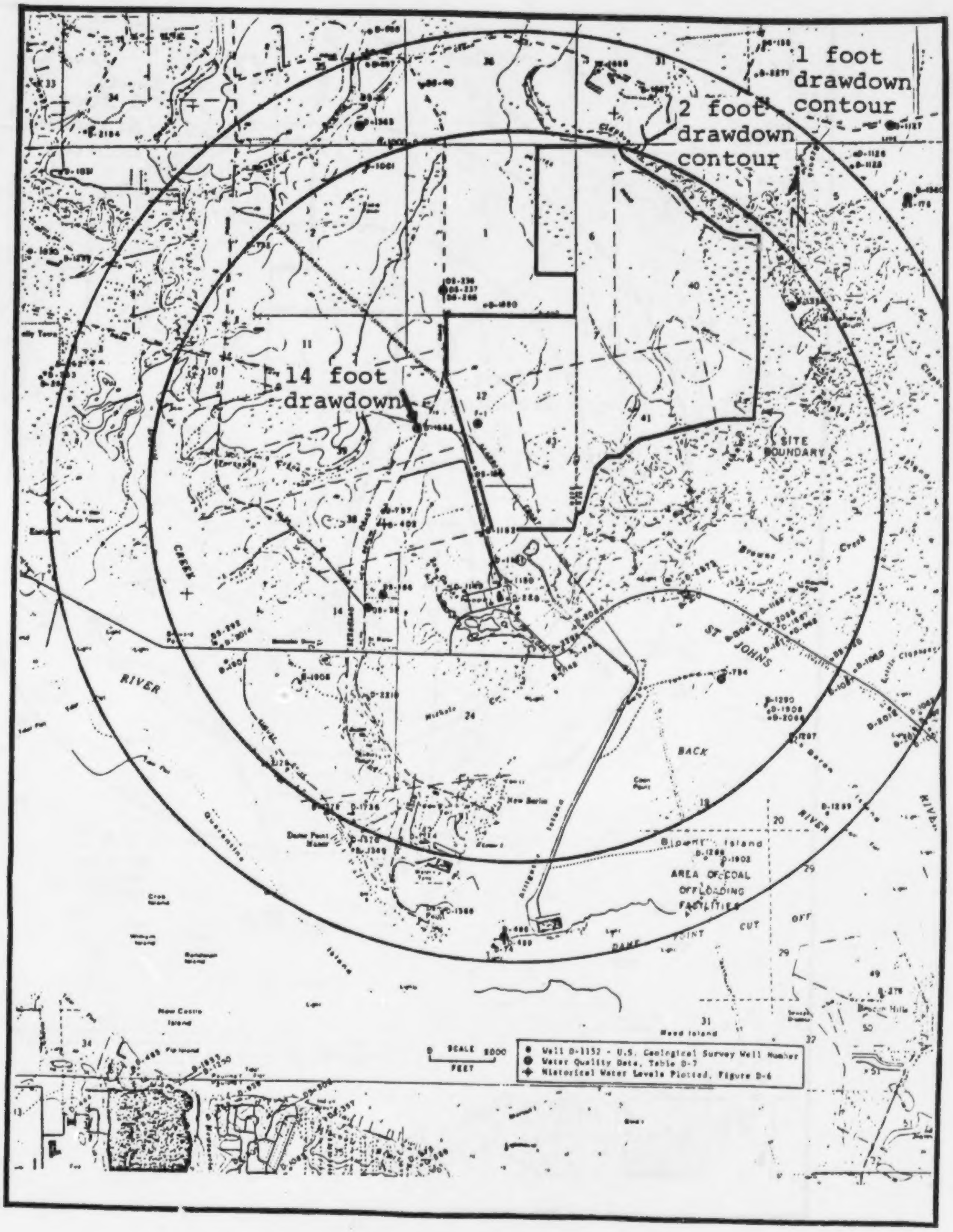
FEET
● Well D-1152 - U.S. Geological Survey Well Number
● Water Quality Data, Table D-7
✦ Historical Water Levels Plotted, Figure D-6

Figure 10. Cone of depression around SJRPP for two wells discharging 3,600 gpm (average pumping condition) (adapted from JEA/FP&L 1981a and Vergara 1981).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CUT
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Reed Island
0 SCALE 2000
FEET
● Well D-1152 - U.S. Geological Survey Well Number
● Water Quality Data, Table D-7
◆ Historical Water Levels Plotted, Figure D-6

Figure 11. Cone of depression around SJRPP for three wells discharging 5,400 gpm (maximum expected rate) (adapted from JEA/FP&L 1981a and Vergara 1981).

W-104: No response required.

W-105: The only significant increase in noise due to SJRPP will result from steam blowout. However, this will only occur once or twice a year during scheduled maintenance periods and is not considered to be a significant impact on area residences.

W-106: Based on the results of the official Section 7 consultation with the USFWS and the analysis provided in the Draft SAR/EIS, the SJRPP will not threaten the continued existence of Federally listed rare, threatened, or endangered species.

W-107: Refer to response to comment W-17.

W-108: On page 4-81 of the Draft SAR/EIS, it was stated that there would be an increase in total salt deposition of 0.9 mg/m^2/hr. The rate of 0.9 mg/m^2/hr was a typographical error which is corrected here in the Final EIS. As shown in Appendix O of the Technical Reference Document for the Draft SAR/EIS, the actual increase in deposition was estimated to be about 0.5 mg/m^2/hr (total salts). Given a background rate of 0.42 mg/m^2/hr total salts, the actual total increase would therefore be approximately 0.92 mg/m^2/hr, not 1.31 mg/m^2/hr as indicated in the Draft SAR/EIS and comment W-108. Approximately 55% of the total salts will consist of chlorides. As shown in Appendix O, the rates of salt deposition represented worst case seasonal averages at a point 1,000 feet to the west of New Berlin Road. Average case depositions would be much lower. The assessment of potential effects due to salt deposition from the two proposed natural draft cooling towers is therefore highly conservative. Beyond the site boundaries the maximum deposition rate would typically be less than one-half of the rate used in the assessment. In addition, the comparison of maximum deposition rates with reported injury thresholds was based on the assumption that no rain would occur during the period of deposition which would wash off any salt accumulation (JEA/FP&L 1981). USEPA has required as a condition of the NPDES permit that an 18-month drift study be conducted in order to determine potential biological impacts of salt on the surrounding area (Appendix 6.1).

W-109: Refer to the second paragraph of the response to comment W-87.

W-110: Traffic on local roadways in the vicinity of SJRPP will approach level of service C during the short period of time when both construction and operation of the facility coincide. Level of service C is defined as stable traffic flow where most drivers are restricted in selecting their speed, but where all traffic will clear a signalized intersection. After the construction phase of SJRPP, the increase in traffic near SJRPP will be insignificant.

W-111: Air quality modeling has shown that there is a possibility of a violation of the FAAQS for sulfur dioxide as a result of the simultaneous maximum load operation of the SJRPP, NGS, and Kennedy and Southside stations under certain meteorological conditions. The FDER Conditions of Certification (Part I-E) (Appendix 6.2) therefore state that under maximum load conditions at SJRPP and NGS, the Southside facility will be shut down. Air quality modeling has shown that this restriction will prevent any violations of the FAAQS.

W-112: Refer to response to comment W-17.

W-113: JEA cannot be expected to assure the serviceability of all existing wells in the area since JEA is not the only user affecting the level of the Aquifer or the quality of the water. However, if genuine cases of water use impact develop where JEA is the cause, JEA should incur the cost.

W-114: Refer to response to comment W-17.

W-115: Refer to response to comment W-107.

W-116: No response required.

W-117: Refer to the response to comment W-16.

W-118: No response required.

W-119: Refer to response to comment W-16.

W-120: Refer to the response to comment W-34.

3.3 PUBLIC HEARING COMMENTS AND RESPONSES BY USEPA

This section summarizes the comments made by the speakers at the public hearing held on 1 December 1981. Because of the length of the public hearing testimony, the issues raised by each speaker have been summarized. An appropriate USEPA response follows each comment made at the hearing. Comments are listed sequentially (P-1 through P-49) according to the order in which the speakers gave their testimony. Table 4 provides a cross reference for major issue categories commented on at the hearing.

P-1. Grace Hardy:

The burning of fossil fuels causes an accumulation of carbon dioxide in the atmosphere. Each ton of coal produces three tons of carbon dioxide which, in generating the same amount of energy, is 20% more than that produced by oil and 70% more than natural gas. The rise in global temperature produced by carbon dioxide could bring about climatic changes which are of agricultural and economic concern.

Response:

The primary concern regarding the addition of large amounts of carbon dioxide to the atmosphere from the combustion of fossil fuels is the possibility of modifying world climatic patterns. Changes in atmospheric carbon dioxide levels have been postulated to induce climatic changes by modifying regional and global heat budgets.

The basic problem in determining the potential for climate modification due to the combustion of fossil fuels and the consequent releases of carbon dioxide is the number of considerable uncertainties regarding both the carbon cycle and climate and their interdependence. In addition, the potential effect of carbon dioxide on climate is complicated by the addition of other industrial gases and particulates to the atmosphere which may reinforce or counteract the carbon dioxide effects.

Unfortunately, these uncertainties can only be resolved by the comprehensive, coordinated efforts of many scientific disciplines. Because such an effort has not yet been undertaken, it is not possible to identify the potential effects of an individual activity or industry on future climatic patterns.

The possible effects on world climate due to the combustion of fossil fuels is a policy issue that should be addressed on a national or global level rather than a local level because of both the complexity and the magnitude of the issue. Therefore, we do not attempt to make a definitive analysis of this issue at the present time.

P-2. Margeret Snyder:

The construction of the SJRPP will destroy the aesthetic appeal of wetlands in the study area.

Table 4. Cross reference for issues categories
and public hearing comments.

Air Quality
P-1
P-13
P-14
P-15
P-16
P-20
P-23
P-33
P-36
P-39
P-45

Terrestrial Ecology
P-18

Wetlands Impacts
P-2
P-6
P-8
P-31

Alternatives to SJRPP - $
P-22
P-30
P-35
P-40
P-41
P-42
P-43
P-44

Groundwater Impact
P-7
P-10
P-12
P-19
P-21
P-25
P-37
P-38

Surface Water Quality
P-3
P-11
P-17
P-24
P-26
P-27
P-28
P-29
P-32
P-34
P-48

Response:

A 200 foot wide buffer strip will be maintained between all site facilities and adjoining wetlands. This will minimize aesthetic impacts by providing a visual shield between adjoining areas and habitat disturbed on the main site.

P-3. Robert Creech:

Degradation of water quality in the St. Johns River could result from the operation of the JEA facility and might impact populations of fish and shellfish.

Response:

Refer to comment W-17.

P-4. Ms. Jerry Leigh:

The Eastport site is the most environmentally sensitive of all the sites considered. Based on the amount of pollution control equipment required for the site, its selection should be reconsidered. It is uncertain that the marshes in the vicinity can tolerate any pollution. The equipment which will be used to control air emissions and discharges to the St. Johns River cannot be trusted to function properly at all times.

Response:

The amount of pollution control equipment required at the Eastport site would not be expected to differ greatly from other potential sites in the JEA service area and would therefore not provide a basis for site selection. Several other factors in addition to environmental concerns also led to the selection of the Eastport site. These were fully addressed in Appendix W of the Technical Reference Document of the Draft SAR/EIS. Primary among these factors are: (1) the rejection of the preferred Clay County site by a Clay County citizens group; (2) excellent barge and rail access at Eastport; (3) the fact that the Eastport site was already suitably zoned; and (4) use of the NGS discharge as cooling water for the SJRPP virtually eliminated entrainment problems.

The most important potential source of pollution to adjoining marshes would include leachate from solid waste disposal areas. However, possible contamination of adjoining marshlands by solid waste leachates will be minimized by implementation of a five-year test program which has been approved by USEPA. Refer to the response to written comment W-34 for a description of this plan.

P-5. Ms. Jerry Leigh:

The public was not given full representation in the site selection process. Public opposition existed to the Eastport site selection, but was not aired due to assurances from elected officials that Eastport would not be chosen.

Response:

The public was provided with numerous opportunities to contribute to the site selection process and various individuals and groups (for example, the Clay County Coalition) did actively participate. A detailed summary of the events leading to the selection of the Eastport site was provided in Appendix W of the Technical Reference Document of the Draft SAR/EIS. One of the important factors leading to the selection of the Eastport site was the effective opposition to building the plant in Clay County that was voiced by the Clay County Coalition. Numerous other examples of citizen input are given in Appendix W of the Technical Reference Document.

P-6. Ms. Jerry Leigh:

The St. Johns River marshes are endangered and should be protected.

Response:

The construction of the SJRPP will not have direct adverse impacts on area salt marshes. The salt marsh lost in the construction of SJRPP and the associated coal unloading facility was originally estimated conservatively at less than one acre. This area is located at the Blount Island facility and is not continuous with any large marsh system. Furthermore, JEA has recently decided that since most of this area is beneath the transmission line ROW, it would not be necessary to disturb it. On the main site, a 200 foot wide buffer will be maintained between adjoining salt marshes (and remaining seasonally flooded wetlands) and the power plant facilities. In addition, approximately 65 acres of hardwood swamp within the main site boundary will be fenced off and permanently preserved.

Operation of the SJRPP could potentially affect area salt marshes. The most important potential source of pollution which could affect adjoining salt marshes would include leachate from the solid waste disposal areas. These impacts will be minimized, however, by institution of a USEPA-approved five-year waste disposal plan. Refer to the response to comment W-34 for a description of this plan.

P-7. Donald Moore:

Does the statement on page M-50 of the Technical Reference Document which reads "for those users currently utilizing artesian wells, the flow could be substantially reduced, possibly necessitating the use of pumps to deliver the same quantity of water" take into consideration future water usage requirements by Offshore Power Systems and St. Regis?

Response:

The assessment of impacts on existing wells in the vicinity of SJRPP took into account the water usage of all facilities in existence at the time that the analysis was conducted. Future withdrawals were not factored into the analysis of SJRPP. Such withdrawals would contribute to a long-standing pattern in the area in which the level of the Floridan

Aquifer has been falling at a rate of 0.5 ft/year since the 1940's. It is probable, given this pattern, that artesian wells in the area will continue to decline in productivity in the future with or without SJRPP. Refer to the responses to written comments W-33, W-42, W-66, W-68, and W-69 for further details concerning water withdrawal issues.

P-8. Jeane Creech:

The St. Johns River, Nassau Valley marshes are some of the State's most important commercial and recreational fisheries and should be preserved.

Response:

Refer to responses to comments P-4 and P-6.

P-9. Jeane Creech:

What effect on property values will result from coal trains travelling back and forth to Blount Island?

Response:

Since publication of the Draft SAR/EIS, JEA has decided not to use coal trains to carry coal from Blount Island to the plant. Instead, an enclosed coal conveyer belt will be used. Since the design and specific location of the conveyor belt has not been determined as of the publication of this Final EIS, this comment cannot be responded to adequately at this time.

P-10. Jeane Creech:

What will happen to the water pressure of surrounding homes as the power plant draws down on the wells?

Response:

Refer to the response to comment W-103.

P-11. Walter Armstrong, Jr.

The mercury danger to the fish in the St. Johns River is unacceptable.

Response:

Refer to the response to comment W-17.

P-12. Walter Armstrong, Jr.:

The drinking water supply of the surrounding area is endangered by the JEA project.

Response:

All of the drinking water in the vicinity of the SJRPP is supplied from wells. Most of these wells are located in the Floridan Aquifer. As indicated in Section 4.4.2.1, page 4-54 of the Draft SAR/EIS, the operation of the SJRPP would have a potential but unquantifiable impact on the water quality of the Floridan Aquifer. The SJRPP withdrawal would contribute to the gradual regional increase in chloride intrusion which has been associated with increasing regional withdrawals. However, the chloride intrusion problem has been occurring for some time as a result of generally greater groundwater use throughout northeast Florida and the extent to which the SJRPP would affect it is uncertain.

There was also initial concern that contaminated leachate from solid waste disposal areas might possibly affect the quality of the water table and shallow rock aquifers. However, steps have been taken to assure that groundwater resources are protected from possible leachate contamination by requiring that JEA institute a five-year solid waste disposal plan. As specified in the plan, all solid wastes not marketed as gypsum must be disposed of in the area previously designated as the bottom ash pond. This area is located above the 20-foot elevation on the site and is well above the groundwater table. The careful design of the landfill will ensure that groundwater criteria are not violated. A monitoring program will be instituted to keep a constant check on the quality of groundwater in the vicinity of the disposal area. Refer to the response to written comment W-34 concerning details of the plan and means by which groundwater quality will be protected.

P-13. Walter Armstrong, Jr.:

Duval County is the nation's leading producer of lung cancer and the addition of a coal-fired plant will only add to the already existing problem.

Response:

The potential health impacts of the SJRPP were addressed in the Draft SAR/EIS. The conclusion of this analysis was that the proposed emission controls would be adequate to mitigate any adverse impacts on human health. The emissions will meet all State and Federal air quality standards.

P-14. Walter Armstrong, Jr.:

Electrostatic precipitators and flue gas controls are unreliable and JEA's proposed facility has no fail-safe capacity.

Response:

The design control efficiency and reliability of electrostatic precipitators and flue gas controls have been reviewed and approved by USEPA. Also, because the systems have 100% backup, the probability of a system-wide failure of pollution control devices is extremely minute.

P-15. Joseph Wilson:

The Draft SAR/EIS fails to address the issue of carbon dioxide.

Response:

Refer to response to comment P-1.

P-16. Joseph Wilson:

The Draft SAR/EIS does not adequately cover the issue of acid rain.

Response:

In recent years the increase in rainfall acidity levels across Florida and other parts of the country has been ascribed in part to the air emissions from coal-fired power plants. This has led to the requirement for emission controls on these plants designed to reduce the potential acid causing factors. Generally, sulfur dioxide and oxides of nitrogen are believed to be the primary agents contributing to rainfall acidification. However, a great deal remains unknown about the amount that these two gases contribute to the problem as well as how and where the acidification takes place.

Rainfall under unpolluted conditions tends to be somewhat acidic with a pH on the order of 5.6-5.7. This is due to the absorption of carbon dioxide in water in the atmosphere. Also, neither sulfur dioxide nor nitrogen dioxide by themselves are acidic. However, after about 3 to 4 days, these gases typically interact with sunlight, water vapor, ammonia, and other chemical compounds in the atmosphere and are converted to sulfuric and nitric acid. Scientists are studying the rate of these reactions, ways to prevent the end acidic product from affecting the environment, where the end product eventually produces its impacts, and numerous other questions relating to the conversion reactions. It is universally agreed that the entire cause and effect relationship is very complex.

Most of the acidity is derived from sulfur dioxide sources in the northeastern United States. Conversion from sulfur dioxide into sulfuric acid may begin to affect the environment more than 50 km from the source and the acid is susceptible to long-range transport. Florida is subject to frequent cold fronts moving into the State in the winter months which are suspected of bringing in northern-based pollutants (JEA/FP&L 1981).

Florida itself has relatively few coal-fired industries at this time, but combustion of oil and gas as well as emissions from heavy industries such as pulp mills and the phosphate industry make significant contributions to SO_2 and NOx loadings. Florida tends to be the recipient of acid rain forming pollutants due to long range transport from out of state sources. As more coal-fired industry is utilized, this balance may begin to shift. The SJRPP would contribute slightly to the problem, but effects would be expected to occur approximately 100 km away from the plant. Some studies have indicated that the majority of acidic fallout impacts may occur 200 to 300 kilometers from the source. The degree of actual impact at a particular point source is extremely difficult to quantify, however.

Stringent sulfur emission controls will be required prior to operation of SJRPP Units 1 and 2, thereby reducing the impact of this pollutant. These units will thus have less impact than that of other existing units in Florida which do not employ such emission controls. The SJRPP Units 1 and 2 will utilize flue gas desulfurization scrubbers to limit sulfur emissions. Oxides of nitrogen will be controlled by boiler design. Such control will help mitigate potential acid rain problems.

Construction of new coal-fired units may possibly even have a slightly positive effect on the acid rain problem in Florida. Results of the Florida Sulfur Oxides Study (In JEA/FP&L 1981) indicated that the conversion of sulfur dioxide to sulfuric acid forms two to three times faster in the exhaust plume from an oil-fired power plant than from a coal-fired power plant. Oil-fired power plants in Florida do not have emission controls for sulfur oxides or nitrogen oxides in most instances. As new coal-fired power plants are built with pollution control devices, and as these new coal plants replace the oil plants that emit greater quantities of SOx and NOx, then that portion of air pollution produced by these sources (which contribute to acid rain) may decrease.

Acid rain may have potential adverse impacts on aquatic life, but these are very difficult to attribute to a single emission source. The pH levels in Florida lakes, primarily those in the northern part of the State, have been dropping (e.g., becoming more acidic) over the past two decades. Many of Florida's perched sand lakes have little or no buffering capacity and are therefore more susceptible to acid rain. As noted by the Florida Game and Fresh Water Fish Commission (GFWFC) in Appendix H of the Technical Reference Document, such areas exist 30 miles to the west of the proposed plant. The extreme western portion of Nassau County, most of Baker and Columbia Counties, the western half of Clay County, the eastern half of Bradford County, and parts of Georgia are characterized by surface waters of pH 4.0-5.0.

The proposed plant has some potential for further reducing the pH of the surface waters in these areas which could have an adverse impact on aquatic organisms. The assessment by the Florida GFWFC is a subjective estimate based on the amounts of sulfur and nitrogen oxides to be produced, the prevailing wind direction, and the proximity of the areas of concern (Appendix H). However, it is extremely difficult to attribute acid rain impacts to any particular point source (JEA/FP&L 1981). Therefore, these assertions cannot be supported scientifically at this time.

P-17. Joseph Wilson:

The Draft SAR/EIS fails to adequately address the issue of the effects on manatees in the St. Johns River.

Response:

To determine the potential occurrence of manatees in the vicinity of the SJRPP and NGS, a manatee watch was instituted as described in Section 6.2.4.2, page 6.2-24 of the SCA/EID (JEA/FP&L 1981). One hour observations were made at NGS, Alton Box Company, Kennedy Generating Station, and Southside Generating Station from February through April 1980. Watches were conducted weekly at each location. Field notes taken at each observation included physical water measurements, time of day, location, number of manatees, and their size.

Results of the watch (Section 2.8.7 of the SCA/EID) showed that manatees did not use the NGS discharge as a warm water refuge during the colder months of the year. However, a manatee was sighted in the Blount Island Channel during the summer.

The US Fish and Wildlife Service, Jacksonville Area Office, has completed an official Section 7 consultation (Refer to response to comment W-24 and Appendix 6.3) to determine the potential impacts of the operation and construction phases (including dredging effects) on manatees. The USFWS determined that if JEA employed suitable mitigative measures (Refer to response to written comments W-28 and W-54), the continued existence of the manatee would not be threatened by the dredging operations. The US Army Corps of Engineers has agreed to condition the Section 10/404 permit to incorporate certain of these measures (Refer to response to written comment W-54). Therefore, no adverse impacts on manatees due to the proposed project are projected.

P-18. Joseph Wilson:

The Draft SAR/EIS fails to provide adequate mitigation for habitat disturbance of endangered species. Specifically this includes bald eagles, osprey, peregrine falcons, brown pelicans, and wood storks.

Response:

No mitigation plan would actually be needed to protect these species. The following paragraphs summarize the potential impacts on each of these animals and demonstrate why such plans are not necessary.

The nearest bald eagle nest is located near Craig Field, seven miles south of the site. Eagle nesting habitat potentially occurs on the eastern edge of the SJRPP site. The surrounding area is relatively industrialized, however, which greatly reduces the possibility of eagles actually nesting in this area. It is therefore unlikely that eagles would be affected by the proposed project. This nest is located about 4,000 feet from the proposed transmission line.

Osprey use the River for feeding and currently nest in three locations on tranmission line towers near the site. Consequently, they may even benefit from the additional tower nesting habitat. No osprey nesting habitat will be disturbed by the project.

Peregrine falcons are migratory and do not nest in the area. Their two local sources of food might be waterfowl (on the River or in area salt marshes) and birds feeding at the sanitary landfill. Plant construction and operation will not affect these resources.

Eastern brown pelicans feed in the discharge area of the NGS and on the River. Because the SJRPP will utilize the NGS discharge, no new major intake or discharge structures are planned for the River. For this reason, their feeding resources should not be measurably affected. No nesting colonies could be affected because the nearest colonies to the south are at Daytona Beach and to the north near Charleston, SC.

The nearest nesting colony of wood storks is at the Dee Dot Ranch about 25 miles south-southeast of the site in southern Duval County. This distance is far in excess of the distance wood storks would travel for food resources to support a colony. No mitigation plan therefore is needed.

P-19. Joseph Wilson:

The impact on colonial nesters from leachate in the Browns Creek estuary needs to be addressed if adequate liners are not used in the construction of the power plant.

Response:

Impacts due to solid waste leachates will be carefully monitored during the five-year test program. Refer to the response to comment W-34 concerning leachates from the solid waste disposal area and the long-term solid waste plan.

P-20. Joseph Wilson:

If plant specifications do not include the USEPA suggested limit of salt drift, this issue needs to be addressed in more detail.

Response:

Discussions of the expected effects of salt drift deposition were included in the SCA/EID (JEA/FP&L 1981) and Appendices K and O of the Draft SAR/EIS. Refer to the response to written comment W-108 for a discussion of potential salt drift impacts. Appendix O of the Technical Reference Document also includes a detailed analysis of salt drift impacts. As a result of the concern over possible salt drift effects, USEPA is requiring as a condition of the proposed NPDES Permit (Appendix 6.2) that JEA conduct a salt drift monitoring study. This study will require drift rate estimates, ground level measurements of salt deposition, and estimates of biological impacts. Should a problem occur, suitable mitigative measures will be employed. Such measures could include the employment of better drift controls by JEA.

P-21. Joseph Wilson:

The disposal of low volume hazardous wastes needs to be determined and mitigation addressed in the Final EIS.

Response:

Low volume wastes include settled solids from the various sedimentation ponds, the metal cleaning retention basin, and the cooling tower basin; separated oil and grease from the oil-water separators; and sludges from the sanitary waste treatment facility and the central wastewater treatment facility. Some of these solids, such as oily waste removed from the oil-water separators and sludge produced during sanitary waste treatment, will be collected for off-site disposal. Some oily wastes may be suitable for incineration in the boilers. None will be disposed of in the on-site solid waste disposal area.

Only one of the low volume solid wastes, the settled solids from the metal cleaning waste retention basin, has a potential for being defined as hazardous. If a determination is made that these wastes meet the criteria of hazardous or fall under the auspices of the Resource Conservation and Recovery Act (RCRA), then they will be disposed of off-site at a RCRA permitted disposal facility. No hazardous or potentially hazardous wastes are to be permanently stored or disposed of on-site.

P-22. Joseph Wilson:

Why was Alternative 1 not chosen as the preferred alternative? This alternative would be viable for JEA and would provide 228 MW of additional power.

Response:

Alternative 1 consisted of four separate actions which must be achieved to realize the same oil displacement as SJRPP. These actions included:

- Residential solar conversion
- Refuse firing
- Coal-oil mixtures
- Purchase of power (Vogtle Nuclear Plant)

While USEPA did not make a detailed evaluation of the feasibility of each component, it did present information showing the relative impact of each. Table 5, page 32 of Appendix BB of the Draft SAR/EIS illustrated the effect on the total costs ($/bbl saved) of the components of Alternative 1. When compared to the proposed action, refuse-fired generation was shown to be 22% more costly; solar domestic hot water 133% more costly; coal-oil mixture 0.01% less costly; and purchase of power from the Vogtle Nuclear Plant 15% less costly.

This comparison illustrated dramatically that the assumptions concerning the costs of purchase of power from the Vogtle Nuclear Plant caused the apparent comparability of this alternative to the SJRPP project.

USEPA recognized the uncertainty surrounding any alternative which consisted of a large interest in a nuclear power plant. As stated on page 18 of Appendix BB, Georgia Power recently announced a 22-month delay in the scheduling of the Vogtle Nuclear Plant and a resulting $1.259 billion cost increase. Since it will be seven years before both units at the Vogtle Nuclear Plant will be completed, USEPA performed an analysis considering a 50% increase in the cost of the plant for Alternative 2. As stated on page 29 of Appendix BB, if the Vogtle Nuclear Plant were to overrun its current estimated cost by 50%, Alternative 2, which relies heavily on Vogtle, would be significantly more expensive than the SJRPP.

Since the Vogtle Nuclear Plant comprised approximately 58% of Alternative 1, if a similar analysis was performed on Alternative 1, the results would also make it significantly more expensive than SJRPP. Finally, as stated on page 3 of Appendix BB:

> "It is also important to realize that this is not intended as a utility planning analysis. It is intended to show whether the four alternatives can meet the same economic goal as SJRPP--low-cost displacement of oil. The analysis does not attempt to weigh the other economic and non-economic factors which the utility management considers in selecting and implementing a long-range generation plan."

This qualification is necessary because JEA has demonstrated a capacity need for 550 MW in the early 1990's. Alternative 1 only provided an increase of 228.4 MW, far short of JEA's need. The costs of providing the additional capacity were not included in the USEPA analysis.

In addition, of the four actions identified in Alternative 1, only one, coal-oil mixture, appeared to offer a $/bbl saved comparable to SJRPP. Conversion studies are already being performed by JEA to determine if conversion is technically and economically feasible for oil displacement beyond that provided by SJRPP. Also, conversion of existing units to either coal or coal-oil mixtures would reduce the capability of JEA's system and accelerate its capacity requirements.

P-23. Joseph Wilson:

Precipitators for particulate emission control should be required in order to achieve USEPA's suggested emission levels.

Response:

Electrostatic precipitators will be used to control particulate emissions from the SJRPP. The design and control efficiency of these units have been reviewed and approved by USEPA.

P-24. Joseph Wilson:

It is recommended that the cooling system chlorine level be limited to 2 milligrams per liter for one hour per day with an ultimate residual of no more than 0.1 milligram per liter in the discharge.

Response:

Refer to response to written cmment W-148.

P-25. Joseph Wilson:

It is recommended that bottom ash and fly ash be dry handled rather than wet handled and that these materials be stored in impermeable lined cells or lined with material of no less than 1 x 10^{-10} cm/sec permeability.

Response:

Although the bottom ash is collected in a wet condition, it is dewatered prior to disposal. Therefore, these wastes are disposed of in an essentially dry state. Fly ash, with the exception of minor wetting to avoid fugitive dust emissions during transport, is proposed to be handled in a dry state. A permeability of 1 x 10^{-7} cm/sec is an established solid waste landfill criterion. USEPA has imposed this requirement on other new source power generating projects when the applicant does not wish to undertake a leachate testing program to aid in determining suitable permeabilities of liners or waste piles.

P-26. Joseph Wilson:

If a water quality variance is issued, it should not allow any discharge into the River which periodically exceeds the current standards.

Response:

Refer to the response to comment W-17.

P-27. Joseph Wilson:

Discharge limits should be set well below toxicity levels of resident organisms to assure that no effluents exceed toxicity limits.

Response:

Refer to the response to comment W-17.

P-28. Joseph Wilson:

If the water quality variances are issued, they should be issued only after a complete baseline survey is conducted of benthic organisms and fish in the St. Johns River, in Browns Creek estuary, and at the mouth of all downstream rivers where there may be backup flushing from the tidal effects of the River. This program should also include bioassay testing.

Response:

Refer to the response to comment W-17. Both the USEPA and FDER are requiring that the JEA conduct a bioassay program on the main SJRPP/NGS discharge (Appendices 6.1 and 6.2).

P-29. Joseph Wilson

The proposed variance for aluminum is of concern due to its potential for reducing fertility in organisms.

Response:

Aluminum requires acidic conditions to maintain a solubility above 2.0 mg/l. Under estuarine conditions where ocean waters are mixed with fresh water, the system is well buffered and consequently the solubility of aluminum is low. As shown in the Draft SAR/EIS, species indigenous to the St. Johns River estuary have threshold toxicity levels well above 2.0 mg/l (Also see USEPA reply to W-17).

P-30. Joseph Wilson:

Re-evaluation of Alternative 1 should be considered for one of the 600 MW plants and a possible relocation of the second plant to a less environmentally sensitive area due to the possibility of low volume hazardous wastes being stored on-site.

Response:

Refer to the response to public hearing comment P-21 concerning low volume wastes.

P-31. Joseph Wilson:

The US Fish and Wildlife Service publication, A Biologist's Manual for the Evaluation of Impacts of Coal-Fired Power Plants on Fish, Wildlife, and Their Habitats, states that the siting of a power plant close to wetlands may have adverse impacts on the quality of life, the diversity of species, and conditions essential to the survival of the wetland ecosystem such as water level and water quality.

Response:

Potential impacts of physical elimination, changes in water quality, and changes in hydrologic regime on wetlands were discussed in Section 4.7 and Appendix O of the Draft SAR/EIS. Potential physical impacts on salt marsh communities of Brown and Clapboard Creeks due to site construction activities will be mitigated by provision of a 200 foot wide buffer strip of natural vegetation along the edge of the construction areas.

No impacts on adjacent wetlands due to groundwater withdrawal are projected since near surface aquifers will not be utilized by the SJRPP. Instead, the deeper Floridan Aquifer will be the source of groundwater for the SJRPP. Since the Floridan Aquifer is separated from the surficial aquifer system by the Hawthorne Formation which acts as an aquiclude, levels of groundwater in the shallow rock and surficial aquifer systems will not be altered.

The most important potential sources of groundwater contamination which could affect adjacent wetlands are the solid waste disposal areas. However, the five-year test program will not allow use of solid waste disposal areas A or B which are immediately adjacent to Brown and Clapboard Creek marshes until the specific limitations and mitigation requirements for each site have been determined (Refer to response to written comment W-34). Instead, the area previously designated as the bottom ash disposal area will be used for all solid wastes produced during the first five years of the plant's life. This area is located at or above the 20 foot elevation and would pose a much lower risk of contamination of local marshes than areas A or B. The disposal cell design will minimize the potential for contamination and a rigorous monitoring program will be instituted to assure that groundwater criteria are met. This program will minimize the potential for impacts on marshes to occur in the vicinity of the site.

Impacts on seasonally flooded wetlands located on the site will still result. These impacts were described in Section 4.7 of the Draft SAR/EIS.

P-32. Joseph Wilson:

Rail shipment is the preferable alternative to barge shipment to avoid disturbance to the Blount Island site from dredging and sedimentation.

Response:

Effects of dredging at the Blount Island site will be largely short-term in nature (Section 4.2 of the Draft SAR/EIS). Furthermore, the US Army Corps of Engineers has required that any potential impacts of dredging be minimized by incorporating several required mitigative measures into the Section 10/404 permit (Refer to response to written comment W-54). Impacts of sedimentation during site construction will be minimized by adherence by the JEA to a State-approved erosion and sedimentation control plan.

P-33. Joseph Wilson:

FDER's recommendation for non-violation of State SO_2 standards should be required for Southside Generating Station Units 1 and 2 and also Kennedy Generating Station.

Response:

It is agreed between JEA and FDER that during maximum load operation of the NGS and SJRPP, the Southside Units 1 and 2 will be shut down (Appendix 6.2). Air modeling has shown this action to meet the Florida standards for 24-hour SO_2 levels.

P-34. Joseph Wilson:

Dredging should be for a finite time period not to exceed two years and should be subject to modification depending on water quality changes in the River.

Response:

The actual period of dredging itself will amount only to approximately two months. The two-year variance was requested only to allow for adequate scheduling and coordination of plant construction and dredging activities. The US Army Corps of Engineers Section 10/404 permit will also be conditioned to mitigate potential dredging-related impacts on Federally listed species (Refer to responses to comment W-54).

P-35. Barney Capehart:

The Draft SAR/EIS for the SJRPP does not disclose full environmental issues by not examining a true energy conservation alternative.

Response:

Refer to the response to comment W-16 concerning selection of alternatives and conservation.

P-36. Curtis Moore:

The issue of the effects of trace element emissions from coal-fired plants is not fully addressed in the Draft SAR/EIS. Specifically, it does not relate the effects of trace elements on the neighboring dairy farm and the milk produced for human consumption on this farm.

Response:

During the preparation of the Draft SAR/EIS, an extensive effort was made by USEPA to locate publications dealing with this subject, but none were found. To the best of USEPA's knowledge no such studies have been published. In addition, members of the Electrical Power Research Institute (EPRI) and several utilities were contacted in an effort to determine the status of knowledge concerning the potential effects of power plant trace element emissions on dairy farms and dairy cows. Again, however, no information was obtained concerning this subject and none of these sources knew of any such studies. While USEPA recognizes that this is of concern, it is not possible to add to the analysis presented in the Draft SAR/EIS at the present time due to the paucity of information concerning this subject (Refer to Appendix O of the Technical Reference Document for a more detailed discussion than that presented in the Draft SAR/EIS).

P-37. Curtis Moore:

The operation of the SJRPP will reduce the flow of artesian wells currently in use in the immediate area, necessitating the use of pumps to deliver the needed amount of water. The neighboring cattle farm depends upon five artesian wells and seven rock wells to maintain its herd. There is concern over the possibility of having to pump the necessary water.

Response:

The dairy farm in question is located on New Berlin Road northwest of the SJRPP. Two of the wells on the farm were inventoried by JEA during preparation of the SCA/EID and are indicated as D-999 and D-1000 in Figures 4.4-1 and 4.4-2 of the Draft SAR/EIS. As shown in these figures, the drawdown of the Floridan Aquifer at the farm should be on the order of 1 foot during normal operation of the SJRPP and may reach approximately 2 feet for short periods during maximum pumping at the plant. The loss of 1 to 2 feet of hydraulic head at this site should leave the artesian wells flowing with a remaining head on the order of 13 to 18 feet. There will be a slight decrease in the yield of these wells and pumping may be required in order to sustain yields at their present rate. The proposed withdrawals from the Floridan Aquifer are not expected to affect yields from wells at the farm which are completed in the shallow rock aquifer.

P-38. Curtis Moore:

Lining of the sludge ponds is needed to protect the quality of the water supply of the adjacent cattle farm.

Response:

It is assumed that this statement is referring to any ponds used for settling solid materials from wastewaters. Several ponds will be used for this purpose. Of these, the coal pile sedimentation pond, the metal cleaning waste retention basin, and the flow equalization basin will be lined with polyethylene or equivalent material. All other wastewater containing ponds will be unlined, but do not pose a threat to groundwater resources.

P-39. Curtis Moore:

What effects will dust emissions of the coal unloading facility have on the thousands of new automobiles parked on Blount Island?

Response:

No adverse effects due to coal dust emissions are projected because: (1) the average storage time of cars on Blount Island will be only five days; (2) most of the cars are coated with a layer of cosmoline to protect their paint; and (3) air quality modeling indicated that only 0.11 grams of coal dust would be deposited on any given car in the vicinity over an eight-day period (JEA/FP&L 1981).

P-40. Jack Russo:

The projected construction costs for the two JEA units have been grossly underestimated. What will the end result be when finances are expended and the two units are still incomplete?

Response:

Construction cost projections made for the SJRPP by JEA included careful consideration of numerous factors including inflation. Assuming that no extensive delays in licensing of the SJRPP are encountered, these estimates should be reasonably accurate.

P-41. Charles Pettet:

International rates for crude oil have recently been reduced, thus making it more economically feasible to continue operating the old JEA units.

Response:

The economic feasibility of the SJRPP and consideration of alternatives was analyzed in detail in Appendices AA and BB of the Technical Reference Document for the Draft SAR/EIS. Sections 1.0 and 2.0 of the Draft SAR/EIS summarize this information. This analysis showed that for three (high, medium, low) oil price levels, the SJRPP was economically feasible and that it would be economically advantageous to the Jacksonville area given any reasonable fluctuation in oil prices. In addition, many of the old JEA units will have to be replaced within the next 10 to 20 years due to their age, and they could not continue to be operated indefinitely.

P-42. Chuck Brandvold:

The proposed JEA facility will accelerate consumer electric costs to the range of $180 to $200 per thousand kilowatt hours beginning in the years 1986-1987. Other alternatives are available. Specifically, this includes the purchase of power from Seminole Electric Coop at approximately one-third the cost of that generated by the proposed JEA facility.

Response:

USEPA is not in a position to evaluate the rates charged by JEA to its customers and JEA has not provided any such information. The alternative of purchasing power from Seminole Electric Cooperative was examined by the Florida Public Service Commission during the hearings on the need for the proposed project. Information provided in Table RL-8 of the testimony of Royce Lyles for the hearings showed that purchase of power from Seminole did not offer significant cost advantages over similar power purchase agreements offered by the Southern Companies, and in neither case did the offer extend a period of time equal to the service life of the SJRPP. According to JEA, it was found more cost-effective to purchase power from Southern Companies to satisfy short-term needs and pursue SJRPP as a long-term solution. This argument was accepted by the Public Service Commission.

P-43. Robin Leigh:

It must be proven that the proposed JEA facility will be of economic benefit to the citizens and that the cost of electricity (dollars per thousand kilowatt hours) will be less with the plant than without it.

Response:

Refer to responses to public comment P-42 and written comment W-16.

P-44. Robin Leigh:

Permits for the proposed facility should be deferred until all reasonable alternatives have been examined and until an alternative is found which provides equivalent energy capacity for lower environmental costs.

Response:

Refer to responses to public hearing comment P-42 and written comment W-16.

P-45. Robin Leigh:

Data from a concurrent project, the Dames Point Bridge, are missing from the air quality models and should be included to fully assess the impact of the SJRPP.

Response:

Based on the information provided by the Jacksonville Bio-Environmental Services Division and by FDER regarding air pollution emission sources, the Dames Point Bridge Project is not an active project that would produce emissions.

P-46. Robin Leigh:

The two-fold increase in structure height from the addition of the massive cooling towers represents a violation of visual aesthetics.

Reponse:

In fact, the area in the vicinity of the proposed site is already partially industrialized and is assuming an increasingly industrial appearance. The existing view toward the proposed site is influenced by the buildings, water tower, and stacks of the NGS; the transmission towers and lines associated with NGS; the Offshore Power Systems crane and shipping cranes on Blount Island; and structures of the St. Regis paper mill. The SJRPP would therefore not constitute a major incursion into the existing viewshed. In addition, since the area in the vicinity of the site is already zoned for heavy industry, additional changes in the aesthetic viewshed would occur regardless of whether the SJRPP were built.

P-47. Robin Leigh:

Residents within two miles of the Northside Generating Station are currently subject to intermittent loud noises and the addition of two more boilers will cause a substantial increase in the frequency of these disturbances.

Response:

The Northside Generating Station has in fact experienced some unusual problems which resulted in the steam releases and related noise effects. However, the SJRPP will only very infrequently (on the order of once or twice per year) produce similar levels of noise due to steam blowout during scheduled maintenance.

P-48. Matt Roland:

The elimination of sensitive wetlands on-site and the pollution discharged into the wetlands will damage productive estuarine areas adjacent to the site and have a major impact on the seafood and sport fishing industries.

Response:

Refer to the responses to public hearing comments P-6, P-21, P-24, P-29, P-31 and P-38 as well as written comment W-17.

P-49. John Kern:

The cumulative impacts of OPS and JEA on Blount Island need to be addressed in terms of the addition of 12,000 employees, the traffic, and the fugitive dust produced by the facility.

Response:

These impacts were fully addressed in the Draft SAR/EIS (Sections 4.2 and 4.9).

3.4 JEA'S COMMENTS ON THE DRAFT NPDES PERMIT

This section presents relevant comments which were made by JEA during the review of the Draft NPDES Permit proposed by USEPA. Each comment has been assigned an identification number (W-120 through W-149) as was done for the written comment letters. USEPA's responses to JEA's comments are presented in Section 3.5 immediately following the letters.

Jacksonville Electric Authority

[illegible] WEST DUVAL STREET • P O BOX [illegible] • JACKSONVILLE FLORIDA [illegible]

November 20, 1981

Mr. James Patrick, Acting Chief
Water Permits Branch
U. S. Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30303

Dear Mr. Patrick:

Subject: JACKSONVILLE ELECTRIC AUTHORITY
ST. JOHNS RIVER POWER PARK UNITS 1 & 2
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
FL0037869

Enclosed please find two copies of our comments to the draft NPDES permit for the St. Johns River Power Park, issued October 29, 1981, for public notice. The first set of comments, Attachment A, was provided to Mr. Charles Kaplan and discussed with him in your offices on November 12, 1981. The second set of comments, Attachment B, has been prepared in response to the guidance provided by Mr. Kaplan at that meeting. Attachment B also includes a request for minor clarifications of outfall descriptions.

In addition to transmitting these comments to you, we have included, at Mr. Kaplan's request, a discussion of the dewatering activities which will occur during the initial phase of plant construction. This final enclosure, Attachment C, is an explanation of the techniques we plan to employ for dewatering certain areas of the plant site and the anticipated effects these activities may have on water quality. In this enclosure please find our request for clarification of outfall 002 description, which prompted the discussion on dewatering. Also included is a revised schematic of the construction phase discharge sources.

We may be providing additional comments on the draft NPDES permit as the licensing process continues. However, should you have any questions regarding the enclosed material, please contact Richard Breitmoser at (904) 633-4517.

Sincerely,

Royce Lyles

Royce Lyles
Managing Director

RL/pag
Enclosures

ATTACHMENT A

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II. COMMENTS ON DRAFT NPDES PERMIT

General

Issue: Discharge limitations should be incorporated by reference to state conditions of certification.

For the items listed in the table below, the following paragraph should be included as a footnote where indicated.

"The Florida Department of Environmental Regulation has certified the discharge(s) covered by this permit with conditions (See Attachment _). Section 401 of the Act requires that conditions of certification shall become a condition of the permit. The effluent limits and monitoring requirements, if specified in the attached state certification, shall be as indicated for those parameters included in the certification."

Outfall Serial Number (OSN)	Item
002, Page I-2 (Add above paragraph as footnote 2 for each item)	Oil and Grease Total Residual Chlorine pH
005, Pages I-5 and I-6 (Add above paragraph as footnote 3 for this item)	Cycles of Concentration
006, Pages I-7 and I-8 (Delete existing footnotes 4 and 6. Substitute above paragraph as new footnote 4)	Aluminum, Copper, Cyanide, Iron, Mercury, Nickel Selenium, Silver and Zinc
006, Pages I-9 and I-10 (Delete existing footnotes 4 and 5. Substitute above paragraph as new footnote 4)	Aluminum, Copper, Cyanide Iron, Mercury, Nickel, Selenium, Silver and Zinc

Resolution: Section 122.62(d) of the consolidated permit rules requires that requirements more stringent than or in addition to technology-based limitations be imposed in NPDES permits when necessary to achieve compliance with state water quality standards under Section 303 of the Clean Water Act and state certification requirements under Section 401 of the Clean Water Act.

Conditions applicable to permits may be incorporated by reference. 40 CFR Parts 122.7, 122.8. State conditions of certification promulgated under Section 401 of the Clean Water Act are typically incorporated within the NPDES permit by

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reference. FDER effluent limitations established as part of a state variance proceeding under the Florida Power Plant Siting Act should similarly be included by reference rather than expressly.

Page I-1 and III-1.B

Issue: Temperature limitation on Main Plant Discharge to the Northside Generating Station Discharge Channel - Daily Maximum of 33.9°C or 93.0°F.

Resolution: This requirement does not appear to conform to federal or state requirements. Federal performance standards (40 CFR 423.15 (1)) state that "Heat may be discharged in blowdown from recirculated cooling water systems provided the temperature at which the blowdown is discharged does not exceed at any time the lowest temperature of recirculated cooling water prior to the addition of the makeup water." The blowdown from the cooling towers is withdrawn from the tower basins and so must always be at the lowest temperature of the recirculating cooling water. Since this discharge is physically constrained to satisfy the federal performance standards, a numerical temperature limit at this location is not necessary. The 93°F limit proposed was taken from information presented in the Site Certification Application.

This information was based on a period of record that is shorter than the anticipated lifetime of the proposed plant. It is conceivable that meteorological conditions could occur which would force the lowest temperature of recirculated cooling water to exceed 93°F. A 93°F discharge limit at such a time would clearly not have any relation at all to the federal performance standards.

The state of Florida and the USEPA under the existing Northside Generating Station NPDES permit, have already established a limit of 104°F (40°C) for waters discharged into the Northside Station discharge channel. The proposed limit of 93°F can serve no purpose in protecting either the discharge channel or the mixing zone in the Blount Island Channel from temperatures between 93°F and 104°F. In fact, the mixing zone is restricted to 9.5 acres and the discharge is limited to 105°F in Part III page III-1, Item B, of the proposed permit (Other Requirements).

Since there is no apparent reason for instituting the 93°F limitation, it should be removed and replaced with the requirement that only water at the lowest temperature in the recirculating cooling water system can be discharged, consistent with the applicable federal regulations.

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The proposed limit of 9.5 acres for the mixing zone (2 degree F isotherm) is also inappropriate. This limit was also taken from information presented in the Site Certification Application. It is also based on a period of record that is shorter than the anticipated plant life. More importantly, it does not include operation of all 3 NGS units at full load. As discussed in Appendix C.1 of the Site Certification Application (Figures C.19 and C.20), NGS operating alone, at full load, could produce a mixing zone of approximately 17 acres (2 degrees F isotherm). Since no justification has been presented for reducing the permitted 102.27 acre mixing zone which NGS currently operates under, the 9.5 acre limit should be changed to at least 17.0 acres.

W-122

Page I-2

Issue: The runoff treatment pond shall be capable of containing the 10-year, 24-hour rainfall event (61 acre-feet) plus all accumulated silt. Not less than once per month, permittee shall ascertain that available settling volume meets this requirement and shall report this finding when submitting Discharge Monitoring Reports.

Resolution: Delete the referenced sentences. The runoff treatment pond should not be limited by a design volume of 61 acre-feet plus all accumulated silt. The U.S. EPA's development documents of March, 1974 and September, 1980, and the effluent guidelines under 40 CRF Part 423 do not provide guidance regarding accumulated silt. However, EPA does provide guidance for sediment control and accumulted silt in their October 1976 technology transfer seminar publication (U.S. EPA. October, 1976. Erosion and Sediment Control: Surface Mining in the Eastern U.S. - Design. EPA-625/3-76-006). In this publication, EPA, in Table I-15, states that the sedimentation pond is "to be cleaned when sediment accumulation approaches 60 percent design capacity." Design capacity is based on the 10-year, 24-hour precipitation. Accordingly, the accumulated silt for the SJRPP runoff treatment pond should be limited to 60 percent, or about 36.6 acre-feet, of the design volume.

W-123

The rules under 40 CFR Part 423, in the current and proposed language, do not specifically require a "containment" stipulation. Instead, the language directs the permittee to have a facility designed, constructed, and operated to treat the runoff, not contain.

The permittee is required to meet a discharge limitation for total suspended solids (TSS) of 50 mg/l from the pond in question. Therefore, it is the responsibility of permittee to see that the control technology used to meet the 50 mg/l TSS is functioning. Just as no NPDES restrictions are applicable to sludge thickness in a primary clarifier, NPDES restrictions on the permittee ascertaining accumulated silt volumes are not appropriate.

W-123

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Page I-2

Issue: A need may exist for having effluent from the dewatering activities included in the NPDES Permit.

Resolution: The description for outfall serial number 002 should read, "Runoff Sedimentation Control Pond discharge to Browns Creek (includes construction and yard drainage, effluent from dewatering activities, effluent from ....).

The attached Figure 1 shows where modifications would be made to the flows into the runoff sediment control pond. At this time, dewatering flows are anticipated at about 1,000 gpm. The largest dewatering requirement will be associated with an excavation in the coal/limestone unloader pit area. Devatering associated with this excavation could require production of relatively large quantities of water, about 1,000 gpm, over a period of up to one year. Effluent will pass through screens and filters prior to being discharged into the runoff sediment control pond. No dewatering activities of significant size will be concurrent with this excavation.

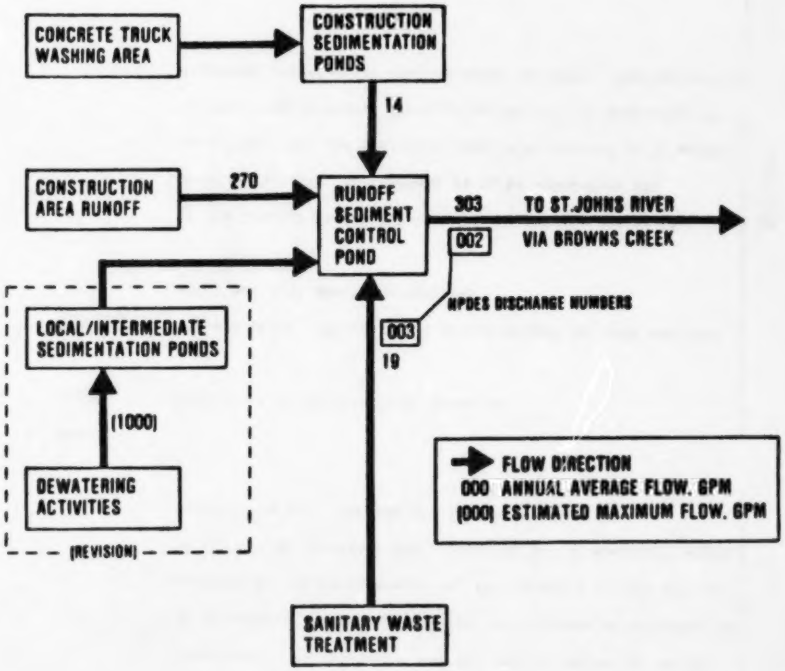
W-124

Page I-3

Issue: Monitoring for pH at OSN 003.

W-125

FIGURE 1
CONSTRUCTION PHASE DRAINAGE-SCHEMATIC


CONCRETE TRUCK WASHING AREA
CONSTRUCTION SEDIMENTATION PONDS
14
CONSTRUCTION AREA RUNOFF
270
RUNOFF SEDIMENT CONTROL POND
303
TO ST.JOHNS RIVER
VIA BROWNS CREEK
002
NPDES DISCHARGE NUMBERS
003
19
LOCAL/INTERMEDIATE SEDIMENTATION PONDS
(1000)
DEWATERING ACTIVITIES
(REVISION)
SANITARY WASTE TREATMENT
FLOW DIRECTION
000 ANNUAL AVERAGE FLOW, GPM
(000) ESTIMATED MAXIMUM FLOW, GPM

F

Resolution: Measuring pH at OSN 003 is unnecessary as pH will be measured at both OSN 002 during construction and at the pump sump during operation. Outfall 002 is the appropriate location for measuring the pH of effluents generated during construction, as these combine in the construction runoff sediment control pond prior to discharging into Brown's Creek. Any excursion from the 6.0 to 9.0 range at the pump sump will trigger return of the final treated effluent to the coal pile runoff sedimentation pond for additional treatment.

W-125

Page I-5

Issue: Typo for FRO.

Resolution: In the first sentence, which begins, "Until the date noted", the term FRO should be changed to read FAO.

W-126

Page I-5

Issue: Restriction on Total Residual Oxidants (TRO) discharge at proposed plant while discharging at Northside Generating Station.

Resolution: The statement "TRO shall not be discharged during periods when TRO is being discharged from any unit at Northside Generating Station" should be omitted.

There is no reason to impose the above restriction on the discharge at outfall serial number (OSN) 005 as long as the discharge at OSN 001 meets its TRO limitation at the end of the Northside Discharge Channel. Because monitoring at the end of the channel would pick up chlorine introduced by either generating station, it is unnecessary to restrict plant operations at both stations by specifying when TRO may be discharged. Additionally, the NGS may discharge TRO because it is present in the intake water, not because of chlorination operations. In these instances, the proposed plant would not be allowed to discharge TRO, according to the statement above, despite the fact that the NGS is not chlorinating.

W-127

Page I-5

Issue: Limitation of TRO discharge duration.

Resolution: The statement "TRO shall not be discharged for more than two hours per day" should be omitted.

If the limitation for chlorine discharge proposed in the October 14, 1980, regulations is to be imposed on the permittee, then the limitation should be imposed as it appears in these regulations. There is no restriction regarding TRO discharge duration for cooling tower blowdown. Discussions at

W-128

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the federal level indicate that EPA's intent regarding this discharge is properly presented in these regulations. The discharge is not restricted by either intermittent or continuous operation, but the TRO concentration discharged cannot exceed 0.14 mg/l at any one time. W-128

Page I-7

Issue: Typos W-129

Resolution: "Daily Ave" should be "Daily Avg"
"Daily Avg" should be "Daily Max"

Page I-7

Issue: Total Suspended Solids - Discharge Limitations: Daily Average of 130 kg/day, or 280 lbs/day, at a concentration of 30 mg/l. Daily maximum of 210 kg/day, or 470 lbs/day, at a concentration of 30 mg/l. W-130

Resolution: Total Suspended Solids - Discharge Limitations: Daily average of 153 kg/day, or 338 lbs/day, at a concentration of 36 mg/l. Daily maximum of 928 kg/day, or 2043 lbs/day, at a concentration of 100 mg/l.

The average daily TSS limitations should reflect an average flow rate of 547 gpm with a concentration of 30 mg/l from the Flow Equalization Pond plus 235 gpm at 50 mg/l from the Coal Pile Runoff Sedimentation Pond. Since the flows can be simultaneous, a daily average concentration of 36 mg/l is reasonable. The use of a combined stream limitation is consistent with the permit rationale used by EPA to develop oil and grease concentrations.

The maximum daily TSS limitations should reflect a maximum flow rate of 1200 gpm with a concentration of 100 mg/l from the Flow Equalization Pond plus 1000 gpm at 50 mg/l from the Coal Pile Runoff Sedimentation Pond. The concentration limitation should be at 100 mg/l since the Flow Equalization Pond effluent can be the sole source of wastewater being treated in the Central Wastewater Treatment Facility. W-130

Page I-7

Issue: Oil and Grease - Discharge Limitation - Daily maximum of 60 kg/day, or 130 lbs/day. W-131

Resolution: Discharge limitation should be 131 kg/day, or 288 lbs/day. Maximum flow rate for the effluent from the Flow Equalization Basin is 1200 gpm for one unit operation. Using a concentration limit of 20 mg/l the resultant requirement is about 131 kg/day, or 288 lbs/day. The permit rationale assumes average flow with a maximum concentration instead of the possible maximum flow and maximum concentration.

Pages I-8 and I-10

Issue: Frequency of monitoring required after start of commercial operation of each unit.

Resolution: The monitoring frequencies described in Footnote 4 should be reduced to provide information which will be both more useful and more representative of the wastewater treatment facility's compliance with the designated pollutant standards. Once per week for the first six months after commercial operation of each unit and once per two weeks for the following six months are inappropriate monitoring frequencies to determine the operational efficiency of the facility. It is expected that this facility, as is true of other treatment facilities, will require some period after startup of each unit for fine-tuning of systems and stabilization of operating procedures and conditions. Monitoring for the metals listed at any frequency greater than once per month would not be representative of the ultimate treatment efficiency provided by the central wastewater treatment facility. Monthly monitoring should be sufficient to demonstrate improvement in system operation and compliance.

Page I-9

Issue: Total Suspended Solids - Discharge Limitations: Daily average of 220 kg/day, or 480 lbs/day at a concentration of 30 mg/l. Daily maximum of 360 kg/day, or 800 lbs/day, at a concentration of 50 mg/l.

Resolution: Total Suspended Solids - Discharge Limitations. Daily average of 243 kg/day, or 536 lbs/day, at a concentration of 34 mg/l. Daily maximum of 1582 kg/day, or 3485 lbs/day, at a concentration of 100 mg/l.

The average daily TSS limitations should reflect an average flow rate of 1094 gpm with a concentration of 30 mg/l from the Flow Equalization Pond plus 235 gpm at 50 mg/l from the Coal Pile Runoff Sedimentation Pond. Since these flows can be simultaneous, a daily average concentration of 34 mg/l is reasonable. The use of a combined stream limitation is consistent with the permit rationale used by EPA to develop oil and grease limitations.

The maximum daily TSS limitations should reflect a maximum flow rate of 1200 gpm with a concentration of 100 mg/l from the Flow Equalization Pond plus 1000 gpm at 50 mg/l from the Coal Pile Runoff Sedimentation Pond. The concentration limitation should be at 100 mg/l since the Flow Equalization Pond effluent can be the sole source of wastewater being treated in the Central Wastewater Treatment Facility. W-133

Page I-9

Issue: Oil and Grease - Discharge Limitation: Daily maximum of 120 kg/day, or 270 lbs/day.

Resolution: Discharge limitation should be 262 kg/day, or 577 lbs/day. Maximum flow rate for the effluent from the Flow Equalization Basin is 2400 gpm for two unit operation. Using a concentration limit of 20 mg/l the resultant requirement is about 288 lbs/day, or 131 kg/day. The permit rationale only assumes average flow with a maximum concentration instead of the possible maximum flow and maximum concentration. W-134

Page I-11

Issue: Monitoring metal cleaning wastes for phosphate and reporting results as "PO_4".

Resolution: Results of all phosphorus analyses should be reported as "P" not as "PO_4". (Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020; p. 365.1-1 to 365.4-3). In addition, lime (CaO) will be used to neutralize metal cleaning wastes and non-phosphate containing cleaners will be used in pre-operational cleaning. Therefore no phosphate containing compounds will enter this waste stream either prior to or during commercial operation, thereby making the measurement of phosphates in this waste stream unnecessary. W-135

Issue: Monitoring metal cleaning wastes for COD.

Resolution: The measurement of COD in any waste stream at the SJRPP would serve no useful purpose because there would be no way to compare individual waste stream COD values to those present in the final effluent. The high chloride concentrations present in the St. Johns River will produce a positive error in any COD analyses conducted on the final effluent. Obviously, this is why there were no requirements in either the NPDES permit or the Conditions of Certification for measurement of COD at the final effluent. Therefore, if there is nothing to compare the waste stream COD values to, there is no practical reason to measure them. W-136

Page I-12

Issue: Reporting results of phosphorus monitoring as "PO_4". W-137

Resolution: Footnote 2 refers to the total quantity of "phosphate" to be discharged. This should be "phosphorus as P" to be consistent with the procedures recommended in EPA's Methods for Chemical Analysis of Water and Wastes. (See same comment on p. I-11). W-137

Page III-1, C

Issue: Additional monitoring for several parameters listed in Item C is not appropriate.

Resolution: Item C should read, "additional monitoring shall include: total suspended solids, copper, and iron." Further, the requirement for monitoring for TSS, copper, and iron is redundant for OSN 006 and 007.

The Draft Conditions of Certification address the monitoring and reporting of metals and other substances at OSN 006, 007 and 010. It is reasonable for the NPDES permit to incorporate by reference the monitoring and reporting requirements as identified by the Draft Conditions of Certification for these locations. This approach is consistent with 40 CFR Part 122. Since no limitations for TSS, copper, and iron are promulgated under 40 CFR Part 423 for cooling tower blowdown and since compliance for these parameters is required at the pump sump, no limitations or monitoring in the combined streams, OSN 001, is warranted. W-138

The need to monitor at OSN 004 and 009 is reasonable when any discharge occurs. Accordingly, incorporating by reference the requirements in the Draft Conditions of Certification for metals and other substances detailed under Section II, 16, B,1, Chemical Monitoring, is recommended. W-138

Page I-16, III-2,3

Issue: Requirements unrelated to point source discharges to waters of the U.S. should be deleted.

Resolution: The NPDES program requires permits for the discharge of pollutants from any point source into waters of the United States. 40 CFR Section 122.51(c). Only conditions applicable to the NPDES program may be incorporated within an NPDES permit. Such conditions are referenced in Sections 122.7, 122.60, and 122.62.

Those paragraphs which are recommended for deletion within the draft NPDES permits are beyond the jurisdiction of the NPDES program since they contain conditions unrelated to the point source discharge of pollutants into waters of the United States. Such paragraphs also contain requirements outside the scope of the Clean Water Act contained in Sections 101 and 402. The following changes to the draft permit are recommended: W-139

I-16 Delete paragraphs B.1.e, f and g

III-2,3 Delete paragraphs L, M, N, O, P, Q, R, and S.

Page I-16 and III-4

Issue: Effluent Bioassay Program

Resolution: The state conditions of certification specifically address the subject of bioassays under Condition II.15, Variances to Water Quality Standards. Because state conditions of certification promulgated under Section 401 of the Clean Water Act typically are incorporated into the NPDES permit by reference (consistent with 40CFR Part 122), the following modifications should be made to Item h, Page I-16 and Item T, Page III-4. Substitute the following paragraph for parts (1), (2), and (3) of Item h, and for Item T:

"The Florida Department of Environmental Regulation has certified the discharge(s) covered by this permit with conditions (See Attachment __). Section 401 of the Act requires that conditions of certification shall become a condition of the permit. Therefore, these conditions pertinent to the bioassay program shall be incorporated herein by reference to the state conditions of certification."

ATTACHMENT B

Attachment B

Additional Comments on Draft NPDES Permit

Page I-1 and III-1.B

Issue: Temperature limitation on Main Plant Discharge to the Northside Generating Station Discharge Channel - Daily Maximum of 33.9°C or 93.0°F.

Resolution: This limitation should be changed to allow a maximum of 96°F, unless this limitation is removed altogether or replaced with the requirement that only water at the lowest temperature in the recirculating cooling water system can be discharged. The 93°F maximum value included in the NPDES permit application was based solely on data collected during one year. Utilizing a longer period of record (though still not as long as the anticipated plant lifetime) and assuming worst case meteorological conditions, a model predicting recirculated cooling water temperatures was run, resulting in a new maximum discharge temperature of 96°F for the main discharge. This value is certainly more reasonable as a maximum value, particularly because the existing NGS discharge has a current temperature limitation of 104°F. Therefore, we would prefer the following wording: "During those periods in which the Northside Generating Station has no thermal discharge, the maximum discharge limitation from SJRPP will be 96°F."

Page III-3, Item O

Issue: This requirement is overly restrictive and as a minimum inconsistent with the Florida Department of Environmental Regulation (DER) Conditions of Certification. See DER's Item XII.B.

Resolution: We suggest that the text of this item be changed to read as follows and be consistent with DER's Condition XII.B. "Permittee may implement a test program to demonstrate the quality and quantity of leachate from an unlined or uncontrolled waste facility. During the testing program, Permittee shall either provide an impermeable liner under the solid waste disposal areas or shall utilize a chemical fixation process, stabilization or other approved methods to control leachate from the solid waste. Upon an affirmative showing that an uncontrolled solid waste facility will not cause violation of groundwater quality criteria, the Florida Department of Environmental Regulation (FDER) may approve use of non-lined or uncontrolled landfill cells."

As discussed in the solid waste management plan, any leachate generated at landfill areas during the course of the solid waste test program is not expected to result in violation of Class I-B water quality standards beyond the property boundary. If the results of the test program indicate that there will be no groundwater contamination as a result of solid waste leachate, then no further action will be required. If the solid waste test program demonstrates the possibility of ultimately exceeding Class I-B water quality standards beyond the property boundary, then the subsequent solid waste and the solid waste material generated during the test program will be disposed of in lined or capped landfills or treated in such a manner to preclude further generation of leachate. Consequently, it is sufficient to provide for solid waste disposal in a well managed, unlined landfill during the course of the test program in conjunction with a lined test facility which will provide for sufficient information to demonstrate the long term protection of the shallow aquifer groundwater resource. W-142

Page III-3, Item P

Issue: This requirement should be consistent with the DER Condition XII.C. W-143

Resolution: Rewrite as follows:

"Permittee shall utilize solid waste disposal area "B", north of Island Drive or the area previously designated for the bottom ash pond, prior to using disposal area "A."

Page III-3, Item Q

Issue: Requirement Q relating to buffer zones during construction requires clarification. W-144

Resolution: Requirement Q should be rewritten as follows: W-144

"To the maximum extent feasible, an undisturbed buffer zone of approximately 200 feet in width shall be maintained between all construction activity areas and on-site wetlands contiguous with the St. Johns River or its tributaries. The buffer zone is to be defined by placement of a fence on the upland limit of the buffer zone as depicted on Figure 4.3-1 of the Revised SCA/EID."

Page III-3, Item S

Issue: Inconsistency with DER Conditions of Certification. W-145

Resolution: Rewrite Item S as follows:

"After review by EPA, the Permittee shall institute a groundwater monitoring program as outlined in the State of Florida Conditions of Certification, Sections II.B.2 and III.G."

Page III-4, Item T

Issue: Structure and requirements of bioassay program. W-146

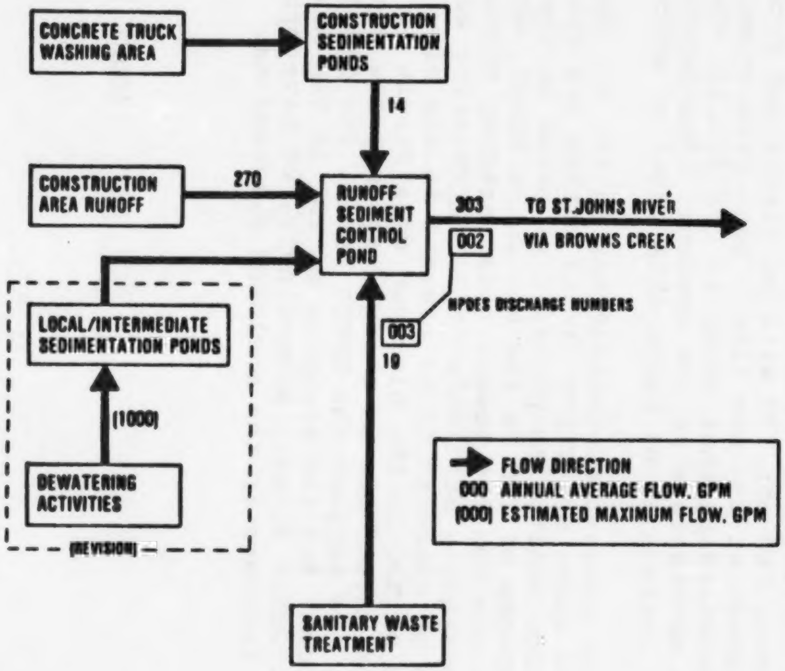
Resolution: Rewrite Item T as follows to be consistent with DER's Condition II.A.15.

"The Permittee shall implement a Bioassay Test Program for copper, mercury, and total residual chlorine. The Bioassay

Test Program shall be implemented after review and approval by the Florida Department of Environmental Regulation (FDER) and review by EPA. The test program shall be submitted to FDER and EPA by December 1, 1983. The FDER shall indicate its approval or disapproval within sixty (60) days, and the EPA shall perform its review in the same time period."

ATTACHMENT C

FIGURE 1
CONSTRUCTION PHASE DRAINAGE-SCHEMATIC


CONCRETE TRUCK WASHING AREA
CONSTRUCTION SEDIMENTATION PONDS
14
CONSTRUCTION AREA RUNOFF
270
RUNOFF SEDIMENT CONTROL POND
303
TO ST.JOHNS RIVER
VIA BROWNS CREEK
002
NPDES DISCHARGE NUMBERS
003
19
LOCAL/INTERMEDIATE SEDIMENTATION PONDS
(1000)
DEWATERING ACTIVITIES
(REVISION)
SANITARY WASTE TREATMENT
FLOW DIRECTION
000 ANNUAL AVERAGE FLOW, GPM
(000) ESTIMATED MAXIMUM FLOW, GPM

Jacksonville Electric Authority

233 WEST DUVAL STREET • P. O. BOX 53015 • JACKSONVILLE, FLORIDA 32201

December 10, 1981

Mr. John Hagan, Acting Chief
Environmental Assessment Branch
U.S. Environmental Protection Agency - Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Dear Mr. Hagan:

Subject: JACKSONVILLE ELECTRIC AUTHORITY
ST. JOHNS RIVER POWER PARK UNITS 1 & 2
DRAFT NPDES PERMIT NO. FL 0037869

Re: Letter of 11/20/81 to Mr. James Patrick, US EPA

Enclosed please find a detailed discussion of the present design and proposed operating sequence for chlorination of the cooling towers at the St. Johns River Power Park Units 1 & 2 (SJRPP). This discussion is the Jacksonville Electric Authority's (JEA) rationale for assuring compliance of the cooling tower blowdown, (OSN005), with requirements of 40 CFR 423.15 and is in response to Item IIE of the NPDES "Fact Sheet".

In particular JEA is assuring that neither free available oxidant (FAO) nor total residual oxidants (TRO) will be discharged from either SJRPP cooling tower for more than two hours per day. Further, neither FAO nor TRO will be discharged from more than one cooling tower at any one time. Both assurances are provided with the understanding that under 40 CFR 423.15, the JEA retains the right to demonstrate to the Regional Administrator that the SJRPP cannot operate at or below this level of chlorination.

Total residual oxidant concentrations in the St. Johns River were measured above detection limits during the JEA's one year pre-application monitoring program, as noted in the discussion. With the presence of TRO in the St. Johns River, which serves as makeup to the cooling towers after passing through the Northside Generating Station's (NGS) circulating water system, some TRO can be expected to be present in the blowdown. However, the presence of TRO in the blowdown as a result of its presence in the makeup should not be charged against the two conditions noted above. We suggest the NPDES Permit for OSN 005 be rephrased so as to account for the presence of TRO in the makeup water from the St. Johns River. Accordingly, we have provided alternative language in the enclosed discussions.

(CONT.)

NPDES Permit No. FL 0037869

Page I-2, OSN 002

Issue: A need exists to have the sources which comprise this outfall better defined.

Resolution: The JEA is requesting that the effluent from dewatering activities be included as an additional source of wastewater to this outfall. Therefore, the description for outfall serial number 002 should read, "Runoff Sediment Control Pond discharge to Browns Creek (includes construction and yard drainage, effluent from dewatering activities, effluent from . . .)."

During the construction phase, water resulting from dewatering activities will be discharged through the Runoff Sediment Control Pond which will discharge to Browns Creek. In addition to discharges from this source, the Runoff Sediment Control Pond will receive discharges from the concrete truck washing area, the construction area runoff and the sanitary wastewater treatment facility. A schematic diagram of the construction phase drainage system is presented in Figure 1.

Mitigating measures will be used to control the solids content of water collected during the dewatering activities. Effects of dewatering on the plant site and mitigating measures to be employed during the construction phase are discussed in the revised SCA/EID, Section 4.1.7 Water Bodies and Uses (pp 4.1-23 to 4.1-26). A system of pump screens or filters will be built into each well point in order to remove solid materials which would affect pump operation. Because of site-specific requirements due to local soil types, specifications regarding the size of particles to be removed will be determined by the JEA's sub-contractor responsible for site dewatering activities.

An indication of the expected quality of the groundwater entering this pond and thence into Browns Creek can be gained from Table 1, which shows comparisons of observed groundwater quality (from samples obtained at a groundwater monitoring well near the proposed site of the pond), on-site surface water quality (from a sampling location near the proposed pond site), and appropriate state water quality criteria.

As noted in Table 1, the only chemical constituent of either the groundwater or the surface water observed in a concentration in excess of its Class III criterion was the average observed groundwater concentration of iron. However, a mass balance analysis indicates that only approximately 308 gpm (less than 0.7 cfs) of surface water will be necessary to dilute 1000 gpm of groundwater with this iron concentration to the Class III criterion of 0.3 mg/1.

Figure 1 indicates annual average flows from the concrete truck washing area, construction area runoff, and sanitary wastewater treatment facility will amount to approximately 303 gpm. The iron concentration of these waters is expected to be less than that observed in the on-site stream monitoring, and since the 1000 gpm flow of the dewatering activities is a maximum flow, not an average flow, it is expected that there will be sufficient dilution within the Runoff Sediment Control Pond to provide a final effluent with an iron concentration below the Class III standard of 0.3 mg/l. Additional reduction of the iron concentration can be expected due to oxidation, precipitation and sedimentation of iron within the pond. This is reasonable because the pond design is for approximately 58 million gallons, which at about 1,303 gpm is just over 31-day retention time.

Page I-1, OSN 001

Issue: Possible inclusion of dewatering activity effluent into outfall serial number 001.

Resolution: Current design of the makeup water intake structure is not anticipated to require any form of dewatering effluent. The structure will be constructed in its final location and the concrete walls will be placed by the formed lift method as the excavation inside the structure progresses. The excavation will be continued until the structure reaches its final

Table 1

QUALITY OF WATER ENTERING RUNOFF SEDIMENT CONTROL POND

Parameter (mg/l except as noted)	Groundwater[1]	Unnamed Tributary to Browns Creek[2]	Class III Criteria
Iron	0.34*	0.17	0.3
Total Diss. Solids	210	105	-
Turbidity (NTU)	13.2	-	
Mercury	<0.0002**	<0.0002**	0.0001
Aluminum	0.44	0.06	1.5
Selenium	<0.01**	<0.0005**	0.025
Cadmium	0.0008	<0.0002**	0.005
Copper	0.008	0.0009	0.015
Lead	0.019	0.002	0.05
Manganese	0.033	0.007	-
Nickel	0.0057	<0.0002**	0.1
Silver	<0.005**	<0.0002**	0.00005
Zinc	0.013	0.009	1
Chromium (hex)	<0.01**	<0.001**	-
Arsenic	0.004	<0.0005**	0.05

---

* exceeds Class III criterion

** below detection limit

[1] Mean values observed at Piezometer DP-10A (revised SCA/EID, Appendix D, Table D-20)

[2] Values observed at Station E-2 (revised SCA/EID, Section 2.5 and Appendix C, Table C-33)

F

Should you require clarification on any of the enclosed material, please contact me at (904) 633-4517.

Very truly yours,

Richard Breitmoser, P.E.
Division Chief
Research & Environmental
Affairs Division

RB/lwr

cc: D. A. Moehle
D. H. Lucas
L. L. Leskovjan

TABLE 1

NOTATIONS AND ASSUMPTIONS

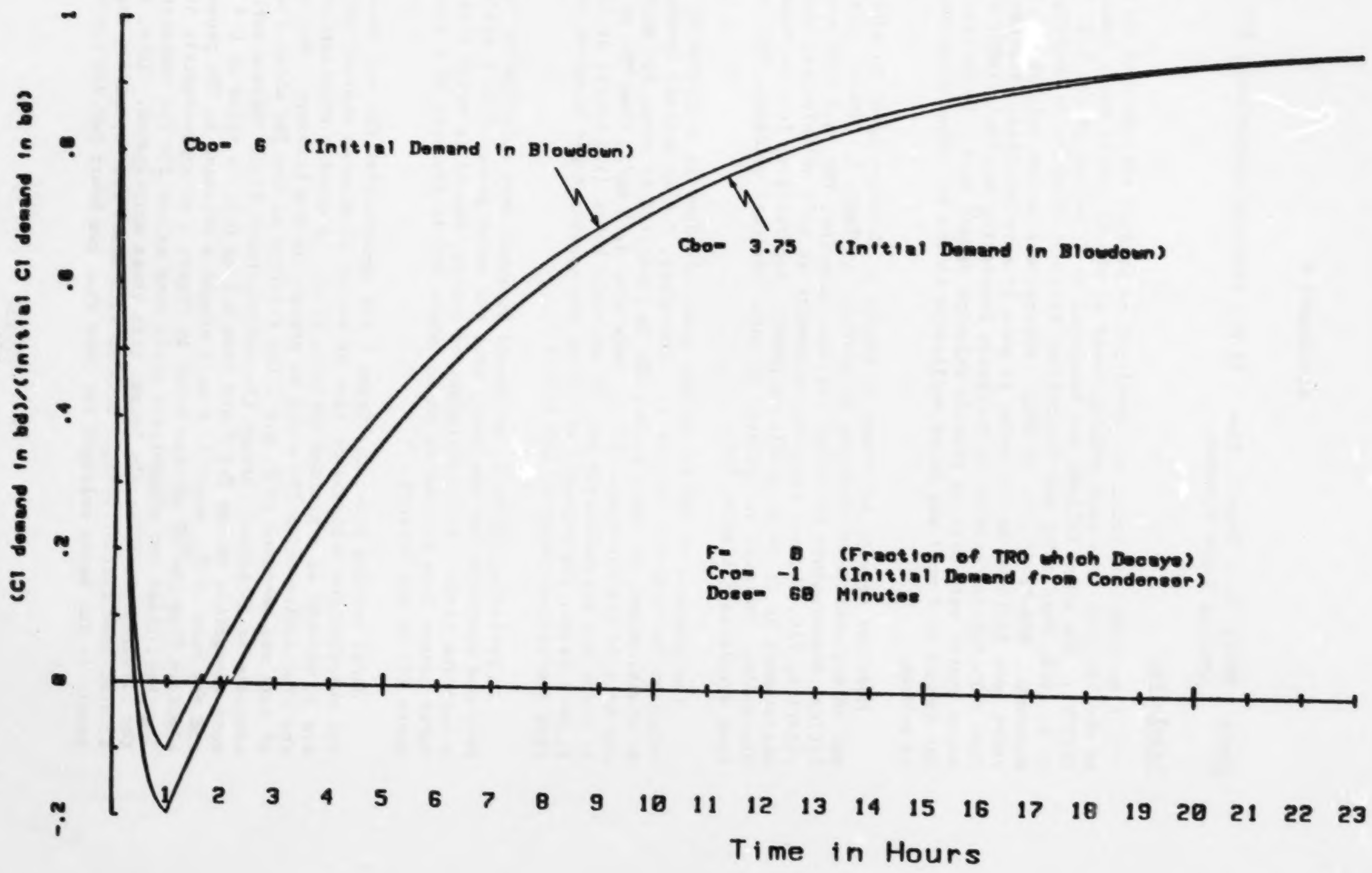
1. C_{bo} = initial chlorine demand in blowdown, at time = 0 hrs. (mg/l)

2. C_{ro} = initial chlorine demand in water returning from the condenser, at time = 0 hrs; assuming 1 mg/l free available oxidant

3. Dose = 60 minutes, beginning at time = 0 hrs.

4. F = fraction of the residual chlorine which flashes or decomposes as it passes through the cooling tower fill

FIGURE 1



CHLORINE LEVEL IN SJRPP BLOWDOWN

Attachment A

Issue: NPDES "Fact Sheet", Item 6.II.E., Effluent Limitations, OSN 005 - Cooling Tower Blowdown

Resolution:

A mathematical model was developed to predict the residual chlorine levels in the blowdown from each cooling tower at the St. Johns River Power Park (SJRPP). The model follows one developed by G. Nelson of the U.S. EPA (Nelson, G. R. 1973, Predicting and Controlling Residual Chlorine in Cooling Tower Blowdown. EPA-R2-73-273. US EPA). Appropriate design volumes and pump flow rates were included in the model to make it site specific. Further, results from chlorination studies on Northside Generating Station's (NGS) circulating water system were used to provide chlorine demand data. In particular, the TRO demand of 6 mg/l was found applicable to the St. Johns River water serving as makeup.

Modeling results are shown in Figure 1, Chlorine Level in SJRPP Blowdown, and an explanation of notation is provided in Table 1. (Note: Although analytical measurements for total residual chlorine, TRC, and free available chlorine, FAC, suggest calculating results as mg/l of chlorine, the actual measurement is of total oxidizing power. Accordingly, for the remainder of this discussion, TRC will be replaced by total residual oxidants, TRO, and FAC by free available oxidants, FAO).

The presence of TRO in cooling tower blowdown is indicated by a negative value on the ordinate (Figure 1). Therefore, for an initial demand of 6 mg/l in the blowdown, or tower basin, TRO is predicted to occur for approximately one hour in the blowdown. If C_{bo} were only 3.75 mg/l, then TRO is predicted to occur for approximately one and one-half hours (1.5 hours) in the blowdown. In both cases, the presence of TRO in the cooling tower blowdown complies with time limitations under 40 CFR 423.15.

In reviewing Figure 1, it should be noted that chlorination begins at time zero and continues for one hour, thus the curve passes from a positive ratio to a negative ratio. After chlorination ceases, demand is still present and the curve passes from a negative ratio, where TRO is present, to a positive ratio, where TRO is not present.

Model results shown in Figure 1 are conservative for two reasons. First, the chlorination application time is set at 60 minutes whereas typical values are 30 minutes as a maximum (Nelson, 1973). A shorter chlorination time reduces the time during which TRO would be present in the blowdown. Secondly, a value of zero was assigned to F, i.e., the fraction of the TRO which flashes or decomposes as it passes through the cooling tower fill. Nelson correctly notes more reasonable values for F are from 0.3 to 0.5. A value of 0.3 was modeled and the case of C_{bo} equal to 6 mg/l showed a decrease in TRO present in the blowdown from the 90 minutes noted in Figure 1 to approximately 54 minutes. Together, these two assumptions yield time values for TRO concentrations in the blowdown significantly longer than those anticipated. Thus, it is demonstrated that current design, coupled with worst case operating assumptions, result in TRO being released for less than two hours per day per unit.

Attachment A (cont.)

TRO was observed in the St. Johns River during the one-year pre-application monitoring program (see Chapter 2.5 and Appendix C of the SCA/EID). Because SJRPP's towers in essence use St. Johns River water as makeup, the presence of TRO in the makeup from other than SJRPP or NGS operation must be recognized in the NPDES Permit. Accordingly, Page I-5 of the permit should be modified to read:

> "Until the date noted. . .during all periods of FAO discharge. . . Neither FAO nor TRO may be discharged from either cooling tower for more than two hours in any one day, except if due to the presence of TRO in the cooling tower makeup, and not more than one tower from either unit may discharge FAO or TRO at any time, except if due to the presence of TRO in the cooling tower makeup, unless the permittee can satisfactorily demonstrate. . .chlorination. TRO shall not be discharged during periods when TRO is being discharged from any unit at Northside Generating Station, except if due to the presence of TRO in the cooling tower makeup (ambient or from chlorination of Northside Units)."

W-149

One final note, as mentioned in Section 5.1.4.2 of the SJRPP SCA/EID, the condenser cooling system for the plant will use mechanical cleaning to reduce bio-fouling. The on-line mechanical cleaning system for the condensers will consist of two independent systems (one for each half of the condenser) and should decrease the need for chlorination in terms of frequency and duration.

3.5 USEPA'S RESPONSES TO COMMENTS ON THE DRAFT NPDES PERMIT

This section provides the responses by USEPA to the numbered comments in Section 3.4. The responses are given in the order of the comments and are referenced by the corresponding comment number (W-120 through W-149).

W-121: A footnote has been added in regard to Proposed Permit page I-2 as follows: "Condition of State Certification, see Attachment B." Footnotes have also been added to pages I-5 and I-6, I-7 and I-8, and I-9 and 1-10 indicating that limitations are a condition of the variance to water quality standards criteria. Also see response to written comment W-17. The last paragraph in Part III includes the requested paragraph language and is not repeated on each page. Limitations and monitoring requirements, however, have been specifically retained in the Proposed NPDES Permit. Under conditions of the Clean Water Act, an NPDES permit must assure compliance with both applicable effluent guidelines and applicable water quality standards. Therefore, limitations, monitoring, and reporting requirements are included in the NPDES Permit as they relate to the variance request or to assuring that discharges are as projected by the applicant and are within an acceptable range for compliance with Federally approved water quality standards. Additionally, since the entire "Conditions of Certification" under the Florida Power Plant Siting Act (as opposed to the State 401 Certification - Attachment B) will be included by reference only, monitoring frequencies are necessary in the NPDES Permit and have been modified in conjunction with State personnel.

W-122: Inclusion of temperature limitations on cooling tower blowdown in the Proposed NPDES Permit (as included in the NPDES application, EIS evaluation, and other documentation) is consistent with other similar permitting actions. The temperature limitation on page I-1 has been increased to 96° F, based on additional information submitted by the applicant. The mixing zone size in Part III.B has been increased to 17 acres.

W-123: Deleted as requested.

W-124: The phrase, "effluent from dewatering activities," has been included in the OSN 002 description as requested.

W-125: Changed as requested.

W-126: Typo corrected.

W-127: Additional language has been included to clarify the USEPA intent.

W-128: Deleted as requested.

W-129: Typos corrected.

W-130: See NPDES Permit Rationale, Appendix 6.1, Item II.F.3. for response.

W-131: See NPDES Permit Rationale, Appendix 6.1, Item II.F.3. for response.

W-132: Monitoring frequencies have been modified somewhat and start of sampling has been changed to "90 days after commercial start-up of Unit 1."

W-133: See NPDES Permit Rationale, Appendix 6.1, Item II.F.3. for response.

W-134: See NPDES Permit Rationale, Appendix 6.1, Item II.F.3. for response.

W-135: Corrected as requested.

W-136: COD is included for monitoring the organic component of the discharge and does not require direct comparison to River water. While BOD could have been substituted, COD is considered to be a more reasonable parameter for this discharge. It is agreed that COD analysis on St. Johns River water or the combined discharge (which includes saline cooling tower blowdown) would not be appropriate due to chloride content, monitoring of OSN 007 is appropriate. The discharge limitation of 100 mg/l has been deleted in conjunction with State personnel. A requirement has been included stating that USEPA be notified if any chemicals other than those previously proposed are to be used.

W-137: Corrected as requested.

W-138: Additional monitoring requirements are considered warranted to quantify discharge of heavy metals from OSN 007 to assure that applicant's projections are correct and that impacts on water quality have been accurately evaluated. Since monitoring for TSS, iron, and copper are 1/day during discharge, no additional sample would be required by Part III.C. for these parameters. Monitoring and reporting requirements are retained in the NPDES Permit for OSN 004, 007, and 009 for the reasons indicated in response to comment W-120 above. Part III.C. requirements have been deleted for OSN 001 as requested. Part III.C. requirements have also been deleted from OSN 006 and 010; however, specific monitoring requirements have been added for these discharges.

W-139: USEPA may impose conditions on NPDES permits which come about as a result of mitigation developed during the EIS process. USEPA's authority to impose such conditions has been upheld in court and has been incorporated into the Agency's regulations for the implementation of NEPA. The USEPA Office of General Counsel has rendered opinions that such conditions must be imposed when the Agency determines that they are required to make the project environmentally supportable.

W-140: The bioassay program required by USEPA is appropriate given the public and regulatory concerns over the impact of the proposed discharge.

W-141: Refer to response to written comment W-121.

W-142: USEPA has conditioned the Proposed NPDES Permit as described in the response to written comment W-34. The Agency deems the permit condition appropriate to assure that impacts from solid waste disposal on the site are minimized and carefully controlled.

W-143: USEPA has conditioned the Proposed NPDES Permit to allow a five-year test program as described in the response to written comment W-34. During this period, waste disposal will be limited to the waste disposal area immediately adjacent to the rail loop and Island Drive. The conditions and order in which waste disposal areas A and B may be used will be determined after completion of the program.

W-144: Fencing of the SJRPP site will be expanded to offer protection to a greater portion of the wetlands and undisturbed natural areas on the SJRPP site as described in the response to written comment W-56. Requirement Q will be modified to reflect the revised fence line.

W-145: USEPA has agreed to allow JEA to institute a five-year solid waste disposal test program as described in the response to written comment W-34. This program will include short-term and long-term groundwater monitoring.

W-146: Refer to the response to written comment W-139.

W-147: Refer to response to written comment W-123.

W-148: No action required.

W-149: At the time of the Draft EIS, concern was expressed with the ability of the applicant to comply with effluent limitations in the Draft NPDES Permit for residual oxidants. The applicant has submitted results of mathematical modeling of the cooling system which indicate that total residual oxidants resulting from system chlorination will not be discharged for more than two hours per day per cooling tower. The die-away coefficients and other aspects of the model, however, have not been verified by field measurements in a salt water cooling tower system. The USEPA staff remains concerned with the applicant's ability to comply with permit conditions for TRO in the cooling tower blowdown without added controls. The applicant proposes to install a mechanical cleaning system for the condensers which will reduce the need for chlorine addition to that portion of the cooling system. Additionally, dechlorination techniques have been demonstrated elsewhere, and can be used by the applicant, if necessary. Since the applicant has expressed his commitment to comply with NPDES conditions and limitations, a specific requirement to provide dechlorination facilities has not been included in the Proposed NPDES Permit.

Additions to the paragraph on page I-5 have been included as requested.

4.0 COORDINATION

The following Federal, State, and local agencies, public officials, organizations, and interest groups have been requested to comment on this impact statement.

Federal Agencies

Department of Agriculture
Department of the Army
Department of Commerce
Department of Energy
Department of Health, Education, and Welfare
Department of the Interior
Energy Research & Development Administration
Federal Aviation Administration
Federal Emergency Management Agency
Federal Energy Regulatory Commission
Federal Highway Administration

State Agencies

Department of Administration
Florida Department of Environmental Regulation
Florida Department of Transportation
Florida Game and Fresh Water Fish Commission
Florida Public Service Commission
State of Florida Department of State
Jacksonville Area Planning Board
Northeast Florida Regional Planning Council
St. John's River Water Management District
State Historic Preservation Officer
Florida Department of Veteran and Community Affairs

Interest Groups

Heckscher Drive Community Club
Sierra Club, Power Plant Siting Committee, Florida Chapter
Sierra Club, Jacksonville Chapter
Duval Audubon Society, Inc.
Florida Lung Association
Sea Oats Garden Club
Defenders of Wildlife

5.0 LIST OF PREPARERS

5.1 US ENVIRONMENTAL PROTECTION AGENCY

Robert B. Howard	Chief EIS Preparation Section Sanitary Engineer
F. Theodore Bisterfeld	Project Officer Biologist
Charles H. Kaplan	NPDES Permit Coordinator Chief, Power Plant/Synfuel Unit
Henry G. Strickland	Water Quality Engineer
David Holroyd	Air Resources Engineer
Louis Nagler	Meteorologist
Ronald Raschke, Ph.D.	Aquatic Resources Aquatic Ecologist
Gail Mitchell	Groundwater Groundwater Hydrogeologist
Michael J. Hartnett	Residuals Management Engineer
William L. Kruczynski, Ph.D.	Wetlands Resources Biologist

5.2 WAPORA, INC.

Ronald B. McNeill	Project Manager
Steven D. Bach, Ph.D.	Assistant Project Manager/Biologist
Lawrence Olinger	Project Administrator
Jerald D. Hitzemann	Quality Control
William J. March, Ph.D.	Hydrologic Engineer/Meteorologist
Mirza Meghji, Ph.D.	Environmental Engineer
David M. Conner	Air/Acoustical Engineer

Kenneth Simonton	Acoustical/Transportation Specialist
Ruthanne L. Mitchell	Assistant Cultural Geographer/Draftsperson
Kim Banks	Archaeologist
Fred C. Mason III	Geologist
Walker J. Duncan	Geologist
Jan E. Dillard	Socioecnomist/Planner
Mark L. Cameron	Socioeconomist/Planner
Alyse Gardner	Biologist
Greg Seegert	Biologist
Wesley Powell	Editor

APPENDIX 6.1

NPDES PERMIT
AND
PERMIT RATIONALE

Note: Changes made to October 29, 1981 Draft Permit and Rationale contained in the SAR/Draft EIS are indicated by a bar in the right and margin.

Permit No.: FL0037869

DRAFT 5/28/82

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended (33 U.S.C. 1251 et. seq; the "Act"),

Jacksonville Electric Authority
233 West Duval Street
Jacksonville, Florida 32201

is authorized to discharge from a facility located at

St. Johns River Power Park
Units 1 and 2
New Berlin Road and Island Drive
Jacksonville, Florida 32226

to receiving waters named St. Johns River and Browns Creek from discharge points enumerated herein as serial numbers 001 through 009.

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof. The permit consists of this cover sheet, Part I 16 pages(s), Part II 12 page(s) and Part III 5 page(s).

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight, (5 years)

Date Signed

Paul J. Traina, Director
Water Management Division

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[redacted]

[redacted]

DRAFT
MAY 28 1982

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 001 - Main Plant Discharge to the Northside Generating Station (NPDES No. FL0001031) Discharge Channel (to the St. Johns River).

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Inst. Maximum	Daily Maximum	Measurement Frequency	Sample Type
Temperature °C (°F)	N/A	35.6 (96.0)	Continuous	Recorder
Total Residual Oxidants(mg/l)	0.10	NA	1/week 1/	Multiple grabs throughout the day
Copper	0.18	NA	2/	24-hour composite

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 1/week on a grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Main Plant Discharge prior to entry into the Northside Discharge Channel, except that chlorine and copper shall be monitored at the end of the Northside Discharge Channel.

1/ From start of chlorination of each unit, analyses shall follow each application until sufficient operating experience has been obtained to assure conformance with limitations and then analysis frequency may be reduced to one day per week.

2/ Once per week starting 90 days after commercial start-up for three months, two per month for the next six months and once per month thereafter. All data shall be submitted monthly during the period of once per week sampling (and summarized quarterly in DMR's).

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 002 - Runoff Sedimentation Control Pond discharge to Browns Creek (includes construction and yard drainage, effluent from Concrete Truck Washing Settling Pond, effluent from dewatering activities, and Sanitary Wastewater Treatment Facility effluent (OSN 003)).

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations	Monitoring Requirements	
	Instantaneous Maximum	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	1/week	Grab
Total Suspended Solids (mg/l)	50 1/	1/week	Grah
Oil and Grease	5.0 2/	1/week	Grab
Total Residual Chlorine (mg/l)	0.01 2/	1/week	Multiple Grabs

To the extent practicable, water for concrete truck washing shall be recycled from the concrete washing settling pond.

The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored 1/week by grab sample 1/, 2/.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): point of discharge from the Runoff Sedimentation Control Pond, except that oil and grease and chlorine shall be at the borrow pit into Browns Creek.

1/ Applicable to any flow up to the flow resulting from a 24-hour rainfall event with a probable recurrence interval of once in ten years.

2/ Condition of State Certification, see Attachment B.

NOTE: SEE ATTACHMENT B FOR MORE STRINGENT REQUIREMENTS

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 003 1/ - Sanitary Wastewater Treatment Facility effluent (Two units in parallel) to OSN 002 during construction of Unit 1 and OSN 001 during operation.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Daily Average (mg/l except as noted)	Daily Maximum	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	114 (0.030) 2/	2/week	Grab
BOD_5	30	60	1/month	8-hour composite
Total Suspended Solids	30	60	1/month	8-hour composite

[redacted]

[redacted]

The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored N/A by grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Combined sewage treatment plant effluent prior to mixing with any other waste stream.

1/ Serial number assigned for identification and monitoring purposes.

2/ Neither unit shall be loaded at greater than one-half the value shown.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 004 - Coal Pile Runoff Sedimentation Pond overflow to Browns Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Daily Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	N/A	During Occurrence	Estimate
Monitoring (See Part III.C.)	N/A	N/A	During Occurrence	Representative

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Discharge to Browns Creek is not permitted except when flow results from a 24-hour rainfall event with a probable recurrence interval of once in ten years (10Q24) or greater. All periods of discharge shall be reported.

Discharge of water from the plant main pump sump to the coal pile runoff sedimentation pond is permitted during periods when the pH of OSN 006 is not within permitted limitations, provided that available excess detention volume not less than that required for a 10Q24 storm is maintained. Water level interlocks or other acceptable positive methods shall be provided to assure control. A report defining the proposed control measures shall be submitted not later than 12 months prior to commercial operation date of Unit 1.

The pH shall be monitored during discharge by representative grab samples.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Discharge from the coal pile runoff sedimentation pond.

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[redacted]

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 005 1/ - Unit 1 and 2 Cooling Tower Blowdowns to OSN 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations (mg/l unless noted) Chlorination Period		Monitoring Requirements	
	Average	Inst. Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	N/A	Daily	Pump logs
Free Available Oxidants - FAO	See Below		1/week 2/	Multiple Grabs
Total Residual Oxidants - TRO	See Below		1/week 2/	Multiple Grabs
Time of TRO discharge (minutes/day/tower)	See Below		1/week 2/	Determinations
Cycles of Concentration	See Below		1/day 3/	Calculation

Until the date noted in the next paragraph, FAO shall not exceed an average concentration of 0.2 mg/l nor a maximum of 0.5 mg/l in the blowdown from either cooling tower during all periods of FAO discharge during any day. Neither FAO nor TRO may be discharged from either cooling tower for more than two hours in any one day, except if due to the presence of TRO in cooling tower make-up, and not more than one tower from either unit may discharge FAO or TRO at any time, except if due to the presence of TRO in cooling tower make-up, unless the permittee can satisfactorily demonstrate to the Regional Administrator that the units cannot operate at or below this level of chlorination. TRO shall not be discharged during periods when TRO is being discharged from any unit at Northside Generating Station, except if due to the presence of TRO in the cooling tower make-up (ambient or from chlorination of Northside Units).

Not later than three years afer promulgation or July 1, 1987, whichever is earlier, TRO shall not exceed a maximum concentration of 0.14 mg/l in the combined cooling tower blowdown discharge. Note: In the event that BAT regulations for control of TRO or chlorine are promulgated in a manner inconsistent with the October 14, 1980, proposed guidelines, requirements of this paragraph will be modified consistent with the promulgated regulations (40 CFR 423).

There shall be no discharge of detectable amounts of materials added for corrosion inhibition (including, but not limited to, zinc, chromium or phosphorus) or any chemicals added which contain the 129 priority pollutants.

Cycles of concentration shall not exceed 1.5 and shall be calculated by dividing the 24-hour average intake flow by the 24-hour average blowdown flow for each tower.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 005 1/ - Unit 1 and 2 Cooling Tower Blowdowns to OSN 001. (Continued)

The permittee shall notify the Director, Enforcement Division in writing not later than four months prior to instituting use of any biocide or chemical used in cooling systems, other than chlorine, which may be toxic to aquatic life, other than those previously reported to the Environmental Protection Agency. Such notification shall include:

1. name and general composition of biocide or chemical,
2. 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge shall occur,
3. quantities to be used,
4. frequencies of use,
5. proposed discharge concentrations, and
6. EPA registration number, if applicable.

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored NA.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Discharge from each of the cooling towers prior to mixing with other waste streams.

1/ Serial number assigned for identification and monitoring purposes.

2/ From start of chlorination of each unit, analyses shall follow each application of chlorine until sufficient operating experience has been obtained to assure conformance with limits and then analysis frequency may be reduced to one day per week.

3/ Condition of Variance, see Attachment B.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning 1/ and lasting through 2/, the permittee is authorized to discharge from outfall(s) serial number(s) 006 3/ - Unit 1 Central Wastewater Treatment Facility effluent to OSN 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations kg/day (lbs/day) Daily Avg	Daily Max	Other Units (mg/1) (except as noted) Daily Avg	Daily Max	Monitoring Requirements Measurement Frequency	Sample Type
Flow-m3/Day (MGD)	N/A	N/A	N/A	N/A	Daily	Pump hour meter
Total Suspended Solids	130(280)	360(800) 7/	30	50 5/	2/week 7/	24-hour composite
Oil and Grease	45(100)	60(130)	10 5/	15 5/	2/week	3-grab composite
Aluminum, total	N/A	N/A	N/A	1.5 6/	4/	24-hour composite
Arsenic, total	N/A	N/A	N/A	N/A	4/	24-hour composite
Chromium, total	N/A	N/A	N/A	N/A	4/	24-hour composite
Copper, total	N/A	N/A	N/A	0.015 6/	4/	24-hour composite
Iron, total	N/A	N/A	N/A	0.3 6/	4/	24-hour composite
Lead, total	N/A	N/A	N/A	N/A	4/	24-hour composite
Mercury, total	N/A	N/A	N/A	0.0001 6/	4/	24-hour composite
Nickel, total	N/A	N/A	N/A	N/A	4/	24-hour composite
Selenium, total	N/A	N/A	N/A	N/A	4/	24-hour composite
Silver, total	N/A	N/A	N/A	0.00005 6/	4/	24-hour composite
Zinc, total	N/A	N/A	N/A	N/A	4/	24-hour composite

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by continuous recorder.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Discharge from the central wastewater treatment facility prior to mixing with any other waste stream, except that pH and metals shall be from the Pump Sump. Daily flow records of both the discharge from the Flow Equalization Basin and Coal Pile Runoff Sedimentation Pond also shall be maintained by pump hour recorders.

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[redacted]

A. **EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

During the period beginning 1/ and lasting through 2/,
the permittee is authorized to discharge from outfall(s) serial number(s) 006 3/ - Unit 1 Central Wastewater Treatment Facility effluent to OSN 001. (Continued)

1/ Start of discharge from Unit 1.

2/ Start of discharge from Unit 2.

3/ Serial number assigned for identification and monitoring purposes.

4/ Once per week starting 90 days after commercial start-up for three months, two per month for the next six months and once per month thereafter. All data shall be submitted monthly during the period of once per week sampling (and summarized quarterly in DMR's).

5/ During periods when coal pile runoff is not being processed, daily maximum limitation for TSS shall be 100 mg/l and daily average and daily maximum for O&G shall be 15 and 20, respectively.

6/ Instantaneous maximum water quality standards criterion. Note: This limitation is subject to modification by the State of Florida in granting, modifying, or denying the requested variances and/or by the USEPA in approving or denying a State variance, should it be granted by the State.

7/ Should runoff necessitate pumping at the rate of 1000 gpm for 24 hours during this period from the coal pile runoff sedimentation pond, this limitation may be increased by 210(460) to a maximum of 570(1260). Sampling for TSS shall be conducted on all such days and the number of samples per week shall be increased similarly.

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[redacted]

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning 1/ and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 006 2/ - Units 1 and 2 Central Wastewater Treatment Facility effluent to OSN 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements	
	kg/day (lbs/day)		Other Units (mg/l) (except as noted)			
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	N/A	N/A	N/A	Daily	Pump hour meter
Total Suspended Solids	220(480)	660(1460) 5/	30	50 3/	2/week 5/	24-hour composite
Oil and Grease	90(200)	120(260)	10 3/	15 3/	2/week	3-grab composite
Aluminum, total	N/A	N/A	N/A	1.5 4/	1/month	24-hour composite
Arsenic, total	N/A	N/A	N/A	N/A	1/month	24-hour composite
Chromium, total	N/A	N/A	N/A	N/A	1/month	24-hour composite
Copper, total	N/A	N/A	N/A	0.015 4/	1/month	24-hour composite
Iron, total	N/A	N/A	N/A	0.3 4/	1/month	24-hour composite
Lead, total	N/A	N/A	N/A	N/A	1/month	24-hour composite
Mercury, total	N/A	N/A	N/A	0.0001 4/	1/month	24-hour composite
Nickel, total	N/A	N/A	N/A	N/A	1/month	24-hour composite
Selenium, total	N/A	N/A	N/A	N/A	1/month	24-hour composite
Silver, total	N/A	N/A	N/A	0.00005 4/	1/month	24-hour composite
Zinc, total	N/A	N/A	N/A	N/A	1/month	24-hour composite

During periods of metal cleaning, quantity limitations from this source shall be one-half of those noted above (but is increased by the actual quantities of metal cleaning waste pollutants being discharged from OSN 007).

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by continuous recorder.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Discharge from the central wastewater treatment facility prior to mixing with any other waste stream, except that pH and metals shall be from the Pump Sump. Daily flow records of both the discharge from the Flow Equalization Basin and Coal Pile Runoff Sedimentation Pond also shall be maintained by pump hour recorders.

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MAY 28 1982

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning 1/ and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 006 2/ - Units 1 and 2 Central Wastewater Treatment Facility effluent to OSN 001. (Continued)

1/ Start of discharge from Unit 2.

2/ Serial number assigned for identification and monitoring purposes.

3/ During periods when coal pile runoff is not being processed, daily maximum limitation for TSS shall be 100 mg/l and daily average and daily maximum for O&G shall be 15 and 20, respectively.

[redacted]

4/ Instantaneous maximum water quality standards criterion. Note: This limitation is subject to modification by the State of Florida in granting, modifying, or denying the requested variances and/or by the USEPA in approving or denying a State variance, should it be granted by the State.

5/ Should runoff necessitate pumping at the rate of 1000 gpm for 24 hours during this period from the coal pile runoff sedimentation pond, this limitation may be increased by 210(460) to a maximum of 870(1920). Sampling for TSS shall be conducted on all such days and the number of samples per week shall be increased similarly.

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MAY 28 1982

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 007 1/ - Metal Cleaning Wastes from Units 1 and 2 to OSN 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations			Monitoring Requirements	
	kg (lbs) per batch	Other Units (mg/l) (except as noted) Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	N/A	N/A	Daily	Pump hour meter [redacted]
Total Suspended Solids	2/	30	100	1/Day	24-hour composite
Oil and Grease	2/	15	20	1/Day	3-grab composite
Copper, Total	2/	1.0	1.0	1/Day	24-hour composite
Iron, Total	2/	1.0	1.0	1/Day	24-hour composite
Phosphorus as P	2/	N/A	1.0 3/	1/Day	24-hour composite [redacted]
Chemical Oxygen Demand 4/	2/	N/A	N/A	1/Day	24-hour composite
Additional Monitoring		See Part III.C.		1/batch	24-hour composite

Metal cleaning wastes shall mean any cleaning compounds, rinse waters (including water wash operations), or any other waterborne residues derived from cleaning any metal process equipment including, but not limited to, boiler tube cleaning, boiler fireside cleaning and air preheater cleaning.

Metal cleaning wastes shall not be combined with other plant wastes for treatment, except for final neutralization.

Permittee shall notify EPA of any chemicals proposed for use in metal cleaning operations which have not been previously reported and shall indicate the expected levels of organics, phosphorus and priority pollutants expected in the discharge from OSN 007. Such notification shall be not less than 90 days prior to use. Additional limitations and/or monitoring may be required after notification.

The pH shall not be less than N/A standard units nor greater than N/A standard units and shall be monitored by continuous recorder as provided for OSN 006.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Discharge from the sand filter(s) treating metal cleaning wastes prior to combining with any other waste stream.

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 007 1/ - Metal Cleaning Wastes from Units 1 and 2 to OSN 001. (Continued)

1/ Serial number assigned for identification and monitoring purposes.

2/ The total quantity of each pollutant discharged shall be reported. In no case shall the quantity discharged exceed the quantity determined by multiplying the volume of the batch of metal cleaning waste generated times the concentrations noted above [i.e., 3.8 kg (8.3 lbs) of iron, copper, and phosphorus; 57 kg (125 lbs) of oil and grease; and 114 kg (250 lbs) of total suspended solids per million gallons of metal cleaning waste generated]. Total volume of wastewater generated and discharged shall be reported.

3/ Applicable to preoperational cleaning wastes and other cleaning wastes with high initial concentration of phosphorus, if used.

4/ Applicable to any cleaning operation containing organic acids, chelating agents or other compounds with high oxygen demand.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 008 1/ - Oily Water Collection Basin effluent to OSN 001.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations		Monitoring Requirements	
	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	N/A	Daily	Pump hour meter
Total Suspended Solids (mg/l)	30	100	2/week	3-grab composite
Oil and Grease (mg/l)	15	20	2/week	3-grab composite

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 2/week on a grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Basin effluent prior to mixing with any other waste source.

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 009 - Solid Waste Runoff Sedimentation Pond overflow to Browns Creek.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations	Monitoring Requirements	
		Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	N/A	During Occurrence	Estimate
Monitoring (See Part III.C.)	N/A	During Occurrence	Representative

Discharge to Browns Creek is not permitted except when flow results from a 24-hour rainfall event with a probable recurrence interval of once in 10 years (10Q24) or greater. All periods of discharge shall be reported.

Any runoff settling pond shall be capable of containing the 10Q24 rainfall event from all tributary areas plus all accumulated silt. Not less than once per quarter, permittee shall ascertain that available settling volume meets this requirement and shall report this finding when submitting Discharge Monitoring Reports.

The pH shall be monitored during discharge by representative grab samples.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Solid Waste Sedimentation Pond overflow.

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[redacted]

[redacted]

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge from OSN 005 or 006, whichever occurs earlier, and lasting through expiration, the permittee shall monitor serial number 010 1/ - Plant Intake from Northside Discharge Channel.

Characteristic	Monitoring Requirements Measurement Frequency	 Sample Type
Flow-m^3/Day (MGD)	Daily	Pump Logs
Total Residual Oxidants (mg/l)	1/week	Multiple grabs throughout the day
Aluminum, total	2/	24-hour composite
Arsenic, total	2/	24-hour composite
Chromium, total	2/	24-hour composite
Copper, total	2/	24-hour composite
Cyanide, total	2/	24-hour composite
Iron, total	2/	24-hour composite
Lead, total	2/	24-hour composite
Mercury, total	2/	24-hour composite
Nickel, total	2/	24-hour composite
Selenium, total	2/	24-hour composite
Silver, total	2/	24-hour composite
Zinc, total	2/	24-hour composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Plant Intake.

1/ Serial number assigned for identification and monitoring purposes.

2/ Once per week starting 90 days after commercial start-up for three months, two per month for the next six months and once per month thereafter. All data shall be submitted monthly during the period of once per week sampling (and summarized quarterly in DMR's).

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B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharge in accordance with the following schedule:
    - a. Achieve effluent limitations (001-009) - on start of discharge
    - b. Excess Volume Control Report (004) - 12 months prior to commercial operation date of Unit 1
    - c. Flow Reports (Part III.D.)
        - (1) First report - 15 months after commercial operation date of Unit 1
        - (2) Second report - 15 months after commercial operation date of Unit 2
    - d. Priority Pollutant Data (Part III.K.) - Submit by 12 months after commericial operation date of Unit 1
    - e. Archaeological Resources Mitigation Plan (Part III.N.)
        - (1) Submit within 30 days of Permit Issuance
    - f. Long-term Solid Waste Management Plan (Part III.O.)
        - (1) Submit 90 days prior to preparation of any solid waste disposal areas outside previously identified bottom ash pond area.
    - g. FGD System Water Supply Assessment (Part III.R.)
        - (1) Report - submit assessment 180 days after determination that gypsum is not saleable (if such determination is ever necessary).
    - h. Groundwater Monitoring Program (Part III.S.)
        - (1) Implement - 12 months prior to commercial operation date of Unit 1 following program approval
        - (2) Reports - Quarterly with DMR's
    - i. Effluent Toxicity Test and Mercury Bio-concentration Monitoring Program (Parts III.T. and V.)
        - (1) Detailed Study Plan - submit six months prior to commercial operation date of Unit 1
        - (2) Implement - commercial operation date of Unit 1
        - (3) Reports
            - (a) flow-through tests - quarterly with DMR's
            - (b) static tests - quarterly with DMR's
    - j. Salt Drift Monitoring Program (Part III.U.)
        - (1) Study plan - submit six months prior to implementation date
        - (2) Implement - one year prior to operation of first cooling tower
        - (3) Reports - quarterly with DMR's
    - k. FGD Wastewater Monitoring (Part III.V.)
        - (1) Implement - 90 days after commerical start-up
        - (2) Reports - submitted monthly for first three months of monitoring, thereafter with DMR's quarterly
        - (3) FGD technology assessment - annually with first report due 12/31/83.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, and remedial actions taken, and the probability of meeting the next scheduled requirement.

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Signed copies of these, and all other reports required herein, shall be submitted to the Permit Issuing Authority at the following address(es):

Water Permits Branch
Environmental Protection Agency
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

3. Test Procedures

Test procedures for the analysis of pollutants shall conform to all regulations published pursuant to Section 304(h) of the Clean Water Act, as amended (40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants").

4. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling;

b. The person(s) who obtained the samples or measurements;

c. The dates the analyses were performed;

d. The person(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of all required analyses.

5. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

NOTE: WITH THE EXCEPTION OF THE CORRECTION NOTED ABOVE, NO CORRECTIONS HAVE BEEN MADE TO PART II AS INCLUDED IN THE DRAFT SAR/EIS, AND ARE NOT REPRODUCED AGAIN HEREIN.

3 OF 3

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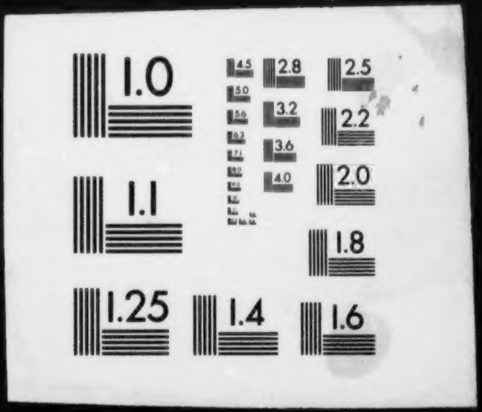
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OTHER REQUIREMENTS

A. No equipment containing polychlorinated biphenyl compounds shall be placed on site.

B. The instantaneous zone of thermal mixing for the cooling system shall not exceed an area of 17 acres. The temperature at the point of discharge into the St. Johns River shall not be greater than 105 degrees F. The temperature of the water at the edge of the mixing zone shall not exceed the limitations of Paragraph 17-3.05(1)(d).

C. Additional monitoring shall include: total, dissolved, settleable and suspended solids; and total aluminum, arsenic, chromium, copper, iron, lead, mercury, nickel, selenium, silver and zinc.

D. Subsequent to commercial operation dates of Units 1 and 2, respectively, the permittee shall conduct a detailed evaluation of actual water use and in-plant waste discharge to confirm design flow data. Reports of this evaluation shall cover a one-year period after start-up of each unit and shall be submitted not later than 15 months after commercial operation date of each unit. In the event that actual flow data are significantly different from design data, permit may be modified by the Director, Water Management Division.

E. Permittee shall institute an evaluation of waste sources which contain or potentially contain high concentrations of oil and grease and by administrative procedure of facility construction shall remove oil and grease from such streams as close to the source as possible. Routine evaluation and sampling of oil separator effluents shall be included in this program.

F. Permittee shall maintain or obtain records of rainfall representative of plant site conditions. All periods of rainfall which exceed the 10-year, 24-hour event shall be reported to EPA.

G. No direct discharge from any solid waste storage area to waters of the U.S. is permitted by this Authorization to Discharge without prior approval by the Director, Water Management Division, except as provided for OSN 009.

H. No direct discharge from the Blount Island Coal Handling Facility is permitted by this Authorization to Discharge.

I. All periods of bypass of the Central Wastewater Treatment Facility from the Flow Splitter Box which result in a discharge to waters of the U.S. shall be reported and sampling of the Pump Sump discharge shall include all parameters noted in Part III.C, plus pH range. Written reports of such bypass shall be submitted monthly, except as required by Part II.A.3.c.

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J. In accordance with Section 306(d) of the Clean Water Act (33 USC Section 1251, et seq.) effluent limitations based on standards of performance contained in this permit shall not be made any more stringent during a ten year period beginning on the date of completion of such construction or during the period of depreciation or amortization of such facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code of 1954, whichever period ends first. The provisions of Section 306(d) do not limit the authority of the Environmental Protection Agency to modify the permit to require compliance with a toxic effluent limitation promulgated under BAT or toxic pollutant standard established under Section 307(a) of the Clean Water Act, or to modify, as necessary, to assure compliance with any applicable state water quality standard. If an applicable standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) and that effluent standard or limitation is more stringent than any effluent limitation in this permit or controls a pollutant not limited in this permit, this permit shall be promptly modified or revoked and reissued to conform to that effluent standard or limitation.

K. Not more than 12 months after the Commercial Operation Date of Unit 1, Permittee shall submit representative data as included in 40 CFR Part 122.53 (d)(7)(ii), (iii) and (iv). In the event that any pollutant is present at an unacceptable level, this permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable provisions of the Clean Water Act.

L. No herbicides shall be used in the initial clearing operations of transmission line rights of way (ROW). Thereafter the use of herbicides for maintenance shall be minimized and shall be used in strict accordance with EPA-approved products and procedures.

M. During ROW clearing operations and transmission line tower construction, an undisturbed 7.6 meters (25 feet) wide buffer shall be maintained adjacent to all streams, rivers or lakes. Within this zone, selective topping of trees or removal of conflict trees which topping would otherwise kill is allowable but is to be done without disturbance of the root mat.

N. Impacts to the designated St. Johns River Power Park Archaeological District shall be mitigated by the permittee in accordance with the Memorandum of Agreement (MOA) between the Advisory Council on Historic Preservation, the State Historic Preservation Officer and the EPA. The mitigation plan, required from the permittee by the MOA, shall be submitted to EPA within 30 days after issuance of this permit. No construction or related activities are to occur within 200 meters of any identified archaeological site pending EPA approval of the mitigation plan.*

*MOA appended to Final EIS

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O. The permittee shall implement a 5-year program to test various disposal techniques for scrubber wastes and coal combustion ash. All leachate and runoff from the proposed 2.0 hectares (5 acre) test cells is to be contained by employment of impermeable liners. Data obtained from the test program and groundwater monitoring on the plant site will be used to develop a long term solid waste management plan. This plan must be submitted to EPA at least 90-days prior to clearing and preparation of any other proposed solid waste disposal area. Failure to demonstrate that the groundwater will be protected from contamination will result in a liner or waste fixation requirement for future solid waste disposal areas.

P. The permittee shall utilize the area previously identified as the bottom ash pond area for all initial solid waste testing and active solid waste disposal during the first 5-year period of plant operation. Any solid waste disposed in this area not underlain by an impermeable liner shall utilize at a minimum physical stabilization and compaction of wastes and soils to control leaching. Disposal area "B", north of Island Drive, shall be utilized prior to clearing and utilization of disposal area "A".

Q. An undisturbed buffer zone approximately 61 meters (200 feet) in width shall be maintained between all construction activity areas and on-site wetlands contiguous with the St. Johns River or its tributaries for the operational life of the plant. The buffer zone is to be defined by placement of a fence on the upland limit of this buffer zone as depicted on Figure 3 of the Final EIS. The buffer zone shall exist along the external southeast side of the plant rail loop. Additional fencing shall be provided along the full length of the property fronting both sides of Island Drive and portions of the northwest corner of the site (Figure 3) to reduce disturbance of upland wildlife habitat until these areas are needed for plant operations.

R. The use of groundwater from the wellfield for plant service water for SJRPP shall be minimized to the greatest extent practicable but in no case shall it exceed .33 m^3/sec (7.6 mgd) on a maximum daily basis or .22 m^3/sec (5.1 mgd) on an average basis. If it is determined that the FGD sludge can not be economically marketed as a gypsum product, the permittee shall assess the feasability of using non-potable alternate water supplies to replace high quality groundwater in scrubber operation. The assessment is to be submitted to the EPA and must include specific water quality requirements of the scrubbers and levels of corrosive constituents in alternative water supplies.

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S. After consultation with and approval from EPA, the permittee shall institute a groundwater monitoring program as outlined in the State of Florida, Conditions of Certification, Sections II. B.2 and III. G. Monthly data shall be submitted quarterly to EPA commencing one year prior to commercial operation of Unit 1.

T. An aquatic toxicity test program shall be performed on the combined NGS/SJRPP discharge effluent (NPDES 001) commencing at the start of commercial operation of Unit 1. A detailed study plan must be submitted for EPA's review and approval at least 6 months prior to initiation of the toxicity tests. Test methodology should be that published in the EPA 600/4-78-012 entitled "Methods for Measuring the Acute Toxicity of Effluents to Aquatic Organisms". Appropriate indigenous species are to be used for the tests. Quarterly 96-hour continuous flow-through tests are to be conducted for the first year of plant operation. Static 48-hour definitive tests are to be conducted on the months in which quarterly flow-through tests are not being conducted. Based on the first full year's testing data, EPA will determine the type and frequency of testing necessary for the duration of the permit.

U. The permittee shall perform a salt drift monitoring program of the SJRPP cooling towers beginning one year prior to operation of the first cooling tower. A detailed monitoring plan must be submitted at least six months prior to initiation to EPA for review and approval. Monitoring reports shall be submitted with the quarterly Discharge Monitoring Reports. The program shall include calculated tower drift emission rates, measured ground level deposition rates and measures of biological impact. Monitoring shall be conducted at least 18 months following operation of the second tower. If the reports indicate significant impacts are occurring to the nearby area, the permittee shall consult with EPA and shall initiate reasonable corrective measures acceptable to EPA to mitigate these impacts. If the reports indicate no significant impacts are occurring to the nearby area, the permittee may seek approval of EPA to reduce or eliminate the drift monitoring program.

V. The permittee shall monitor the untreated blowdown and washdown wastewaters from the FGD system. Waste stream parameters to be monitored are: flow, discharge frequency of washdown wastewater, and total mercury. Once per week monitoring shall begin 90 days after commercial operation for three months, two per month for the next six months and thereafter reduced to once per month. Permittee may petition for termination of monitoring after two years of

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operational data are obtained. Also, the permittee shall annually evaluate available data on raw and treated waste characteristics of blowdown and washdown wastes of FGD systems similar to that proposed for the SJRPP; and shall evaluate available control and treatment technologies to reduce discharge of heavy metals, with particular emphasis on mercury. Permittee shall report the results of such evaluations annually for three years with the first report due on December 31, 1983. Plant design for the SJRPP shall include capability to provide segregation of FGD wastewaters for greater treatment than presently proposed if the Director, Water Management Division determines that such ultimate treatment is warranted to protect the St. Johns River fishery. Permittee shall assess the bio-concentration of mercury present in plant discharge 001. Analyses shall be performed on edible portions of indigenous fish and invertebrate organisms sampled within the 31 acre mixing zone and compared to control samples from outside the mixing zone. Assessment will run concurrent with the effluent toxicity test requirement (Part III. T.) Detailed procedures shall be included in the toxicity test study plan submitted to EPA.

W. If the permittee, after monitoring for a least 18 months, determines that he is consistently meeting the effluent limits contained herein, the permittee may request of the Director, Water Management Division that the monitoring requirements be reduced to a lesser frequency or be eliminated.

X. The Florida Department of Environmental Regulation has certified the discharge(s) covered by this permit with conditions (see Attachment B). Section 401 of the Act requires that conditions of certification shall become a condition of the permit. The monitoring and sampling shall be as indicated for those parameters included in the certification. Any effluent limits, and any additional requirements, specified in the attached state certification which are more stringent supersede any less stringent effluent limits provided herein. During any time period in which the more stringent state certification effluent limits are stayed or inoperable, the effluent limits provided herein shall be in effect and fully enforceable.

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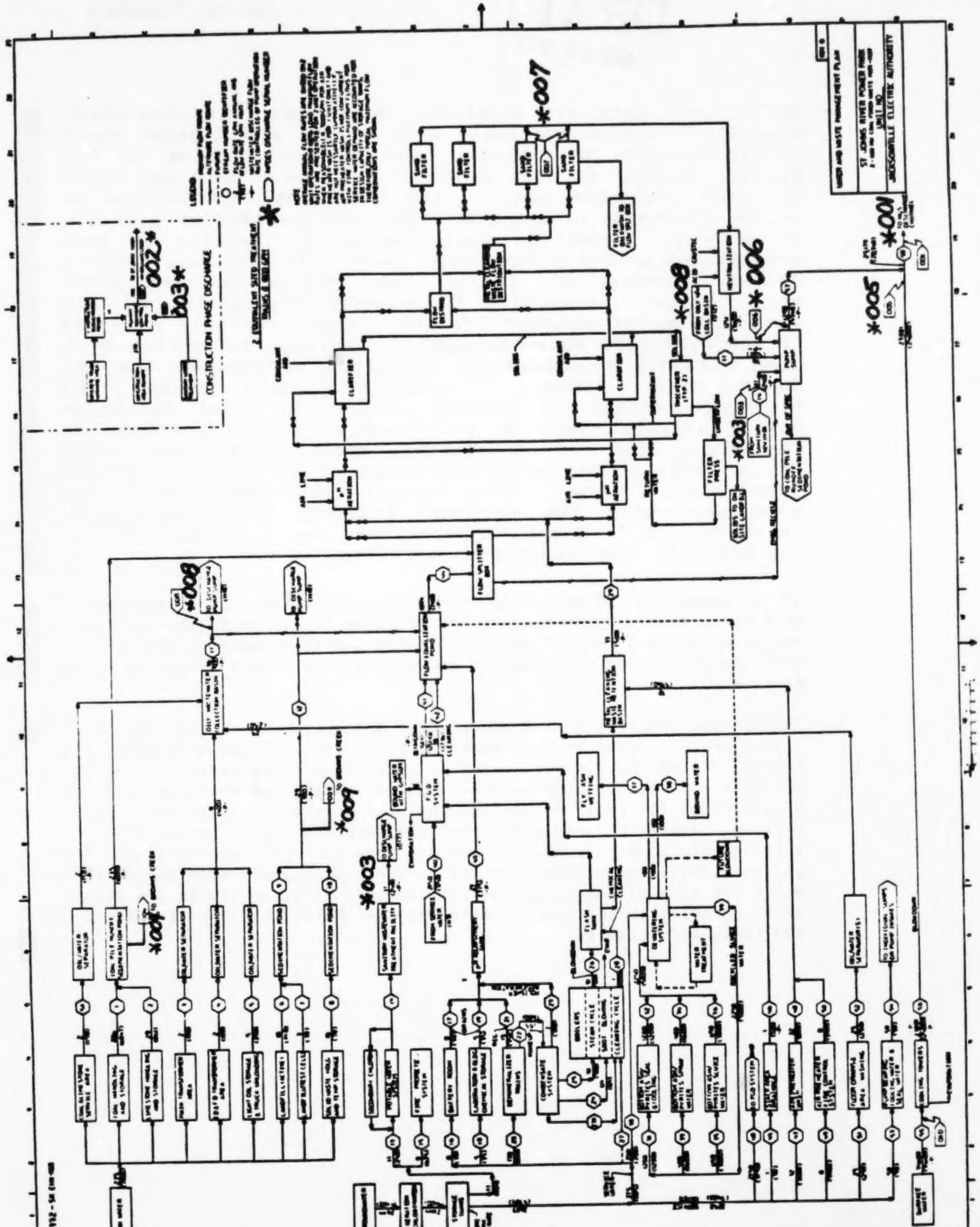
Attachment A
Permit No. FL0037869



WATER AND WASTE MANAGEMENT PLAN
ST. JOHNS RIVER POWER PARK
UNIT NO.
JACKSONVILLE ELECTRIC AUTHORITY
LEGEND
CONSTRUCTION PHASE DISCHARGE
002
003*
*007
SAND FILTER
SAND FILTER
SAND FILTER
SAND FILTER
CLARIFIER
CLARIFIER
*008
*006
*005
*001
*003
FILTER PRESS
FLOW SPLITTER
*008
*009
*003
*004
F.G.D. SYSTEM
FLASH TANK
BOILERS
DEMINERALIZER SYSTEM

F

Attachment B
Permit NO. FL0037869

STATE OF FLORIDA 401 CERTIFICATION

To be provided prior to permit issuance.

PERMIT RATIONALE
ST. JOHNS RIVER POWER PARK
UNITS 1 AND 2
JACKSONVILLE ELECTRIC AUTHORITY

MAY 28 1982

I. Applicable Regulations

A. Federal performance standards for new sources for the steam electric power generating point source category (40 CFR 423) as promulgated on October 8, 1974, and with proposed revisions published on October 14, 1980. (See Environmental Impact Statement (EIS) Table 4.3-1)

B. Florida Water Quality Standards, Chapters 17-3 and 17-4, Florida Administrative Code. (See EIS Table 3.2-1). The receiving waters are classified as Class III - Recreation - Propagation and Management of Fish and Wildlife - Surface Waters.

II. Effluent Limitations

A. Outfall Serial Number (OSN) 001 - Main Plant Discharge to the Northside Generating Station Discharge Channel).

1. Temperature: A maximum 24-hour average discharge temperature of 35.6°C (96.0°F) is included based on the application and supporting information. A mixing zone consistent with Northside discharges is included in Part III.B.

2. Total residual oxidants* (total residual chlorine): Limitation of 0.10 mg/l is based on Florida Water Quality Standards (17-4.244(4)). This section precludes a maximum pollutant concentration within an assigned mixing zone which exceeds the amount lethal to 50 percent of the test organisms in 96 hours (96-hr LC50) for a species significant to the indigenous aquatic community. The 96-hr LC50 value for Blue Crab of 0.10 mg/l has been used to establish the effluent limit.

3. Copper: Limitation of 0.18 mg/l is based on Florida Water Quality Standards [17-4.244(4)], as in the preceeding paragraph for total residual oxidants. The species used was Capitella capitata, a polychaete worm.

* In salt water, addition of chlorine produces a rapid oxidation of iodine, bromine and other chemicals as it is converted to chloride. Therefore, in salt water systems, proper reference is to total residual oxidants (TRO) rather than total residual chlorine. The analysis method is unchanged.

B. OSN 002 - Runoff Sedimentation Control Pond discharge to Browns Creek (includes construction and yard drainage, effluent from Concrete Truck Washing Settling Pond, effluent from dewatering activities and Sanitary Wastewater Treatment Facility effluent).

1. Oil and Grease, Total Residual Chlorine and pH: Limitations are from Chapter 17-3.061 and -3.121 Florida Administrative Code.

2. Total Suspended Solids: Limitation is derived as a best professional judgement to protect sensitive benthic organisms in Browns Creek. See EIS for further discussions.

C. OSN 003 - Sanitary Wastewater Treatment Facility effluent. Limitations are generally based on secondary treatment requirements (40 CFR Part 102) for domestic waste. However, the one-day maximum limitation of 60 mg/l each for total suspended solids and biochemical oxygen demand (BOD) proposed is extrapolated from the seven-day average limitation of 45 mg/l presented in the regulations. This extrapolation was made to conform with the proposed monitoring frequency.

D. OSN 004 and 009 - Coal Pile Runoff Sedimentation Pond overflow and Solid Waste Runoff Sedimentation Pond overflow, respectively, to Browns Creek. Overflows occur only during high intensity rainfall periods and requirements are based on best professional judgement.

E. OSN 005 - Cooling Tower Blowdown. Limitations are as required by promulgated 423.15(i) and (j), with proposed 423.15(j) and (k) requirements included as a best professional judgement for control of toxic and priority pollutants. A limitation of 1.5 cycles of concentration is included as a condition of the variance to Florida Water Quality Standards Criteria (see Part II.F.4 hereinafter). At the time of the Draft EIS, concern was expressed with the ability of the applicant to comply with effluent limitations in the Draft NPDES Permit. The applicant has submitted results of mathematical modeling of the cooling system which indicates that total residual oxidants resulting from system chlorination will not be discharged for more than two hours per day per cooling tower. The die-away coefficients and other aspects of the model, however, have not been verified by field measurements in a salt water cooling tower system. The EPA staff remains concerned with the applicant's ability to comply with permit conditions for TRO in the cooling tower blowdown without added controls. The applicant proposes to to install a mechanical cleaning system for the condensers which will reduce the need for chlorine addition to that portion of the cooling system. Additionally, dechlorination techniques have been demonstrated elsewhere, and can be used by the applicant, if necessary. Since the applicant has expressed his commitment to comply with NPDES conditions and limitations, a specific requirement to provide dechlorination facilities has not been included in the Proposed NPDES Permit.

F. OSN 006 - Central Wastewater Treatment Facility effluent.

1. Limitations are as required by promulgated 423.15(c) for low volume wastes and 423.45 for coal pile runoff and proposed 423.15(c) and 423.15(l) and (m), respectively.

2. Concentration limitations:

   a. Total Suspended Solids: Thirty-day average ("daily average") and 24-hour average ("daily maximum") values of 30 and 50 mg/l, respectively, have been included due to the combination of low volume waste and coal pile runoff (and other area runoff) for treatment in the Central Wastewater Treatment facility. Guideline limitations are 30 mg/l as a daily average and 100 mg/l as a daily maximum for low volume wastes. Limitations for coal pile runoff, however, is "not to exceed" 50 mg/l (i.e., or instantaneous maximum). Therefore, since monitoring is to be by 24-hour composite, 30 mg/l has been selected as a best professional judgement for a daily average limitation for combined wastes and 50 mg/l for the daily maximum limitation.

   b. Oil and grease limitations: Daily average and daily maximum values of 10 and 15 mg/l, respectively, have been included since there is no allowance for oil and grease in coal pile and area runoff while low volume wastes are limited to 15 and 20 mg/l, respectively. Limitations are based on a reduction in concentration which is approximately proportional to pump design capacities:

      15 or 20 mg/l times 2400 divided by 3400

      Where 2400 gpm is the Flow Equalization Pond pump capacity and 3400 gpm is the combined capacity of the Flow Equalization Pond and Coal Pile Runoff Sedimentation Pond pumps (See Attachment A to the Proposed NPDES Permit).

3. Quantity limitations: Calculations are based on the following formula:

Pounds per day = mg/l x MGD x 8.345

Where, 8.345 is the appropriate conversion factor

0.454 pound/day = 1.0 kilogram/day (kg/day)

MGD = Million gallons per day = gpm x 0.00144

Flows MGD (gpm)	One Unit	Two Units
Flow Equalization Pond (Low Volume Wastes)	0.79(547)	1.58(1094)
Coal Pile Runoff Sedimentation Pond	0.34(235)	0.34 (235)
Total	1.13(782)	1.91(1329)

Total Suspended Solids - Daily Average @ 30 mg/l

Kg/day (lb/day)	128(282)	217(479)
Use in Permit	130(280)	220(480)

Total Suspended Solids - Daily Maximum; Low Volume @ 100 mg/l and Coal Pile @ 50 mg/l

Kg/day (lb/day)	362(799)	660(1456)
Use in Permit	360(800)*	660(1460)*

Oil and Grease - Daily Average @ 15 mg/l for Flow Equalization Pond Only

Kg/day (lb/day)	45(99)	90(197)
Use in Permit	45(100)	90(200)

Oil and Grease - Daily Average @ 20 mg/l for Flow Equalization Pond Only

Kg/day (lb/day)	60(131)	119(263)
Use in Permit	60(130)	120(260)

Quantity limitations were obtained by multiplying the expected maximum monthly average flows by the concentrations as indicated above. This procedure is typical of how effluent limitations are generally developed for permits for other industrial categories in Region IV and has been used for other power plants. Effluent Guideline requirements for steam-electric generating facilities (40 CFR 423) are typically stated in the format "the quantity of pollutants discharged from low volume waste sources shall not exceed the quantity determined by multiplying the flow of low volume waste sources times the concentration in the following table" (i.e., TSS 100 mg/l as a maximum for any day and 30 mg/l as an average of daily values for thirty consecutive days). Based on this phraseology, the applicant has requested that daily maximum limitations be derived on the basis of 100 mg/l TSS (20 mg/l of O & G) times the maximum pump capacity for low volume wastes and 50 mg/l TSS times the maximum pump capacity for coal pile runoff. This suggestion has not been taken as it is inconsistent with permitting of other industrial categories in Region IV. The basis for our best professional judgement is contained in 40 CFR 122.63(b). This section states in part, "...calculation of any permit limitations .....which are based on production (or other measure of operation) shall be based not upon the designed production capacity but rather upon a reasonable measure of actual production of the facility, such as the production during the high month of the previous year, or the monthly average for the highest of the previous 5 years...". The preamble (page 33342) in discussing Part 122.63(b) states, "...For example permit limits usually are written for a maximum daily discharge, and an average monthly discharge which is usually lower by a factor of 1.5 or 2. Therefore, a one-month production figure should be used to calculate the average monthly discharge limitation, or a one day production to calculate the maximum daily limitation." Such calculations are based on a constant quantity factor (i.e., so many pounds of TSS per ton of product) times a single variable (i.e., ton of product per day or month). In the case of the steam-electric category, the constant factor used is the estimated high monthly average flow and the variable is the guideline concentration factor (i.e., 30 and 100 mg/l TSS). Where the preamble addresses a factor of 1.5 or 2 as reasonable, the Proposed NPDES Permit allows a factor of 3.0 between daily maximum and daily average TSS (1460 divided by 480 lbs/day for two units).

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* During periods when runoff necessitates pumping at the rate of 1000 gpm for 24 hours during this period from the coal pile runoff sedimentation pond, this limitation may be increased by 210(460).

Although calculations for maximum quantity limitations have not been increased to the extent requested by the applicant, it is recognized that during periods of high intensity rainfall, pumping at the rate of 1000 gpm for 24 hours will be necessary. Therefore, permit conditions allow for an increase of 210 Kg/day (460 lb/day) during such conditions; i.e., (1000gpm - 235 gpm) at 50 mg/l.

4. Variance. Ambient levels of several parameters exceed Florida Water Quality Standards Criteria in the St. Johns River. Therefore, the addition of any of these pollutants (or concentration by the cooling towers), regardless of how little the concentration exceeds the ambient level

and/or the State Criterion, would technically violate the Water Quality Standards. The applicant has requested a variance to certain criteria and a mixing zone for others. The Staff of the State of Florida has proposed to grant variances for aluminum, copper, iron, mercury and silver (Chapter 17-3.121, Florida Administrative Code) and for oil and grease (Chapter 17-3.061, F.A.C.) but only at such times as the natural background levels of the St. Johns River approach or exceed those standards. The variances for mercury, copper, and silver are only for a period of two years from commencement of commercial operation, but are subject to extention based on ambient and effluent monitoring, and on bioassays to be performed for copper, mercury, and total residual chlorine. EPA staff has reviewed the proposed State actions. Limitations on aluminum, copper, iron, mercury, and silver have also been included in the Proposed NPDES Permit as a condition of the Variance and of Permit issurance. Additional information on ambient conditions, expected effluent quality and variance discussions is included in the Draft State Analysis Report/Environmental Impact Statement. Also see response to written comment W-17, Section 3.2 of the Final EIS.

G. OSN 007 - Metal Cleaning Wastes. Limitations are as required by Promulgated 423.15(f) and proposed 423.15(d), except that a best professional judgement limitation for phosphorus has been included.

H. OSN 008 - Oily Waste Collection Basin Effluent. Limitations are as required for promulgated and proposed 423.15(c) for low volume wastes. Quantity limitations have not been included due to the highly variable nature of the area runoff flows.

I. Boiler Blowdown. Promulgated 423.15(g) provides specific limitations for boiler blowdown; however, proposed 423.11(b) would include boiler blowdown in the low volume waste category (423.15(c)). Since boiler blowdown is to be reused as makeup to the flue gas desulfurization system, a best professional judgement is proposed which would not require separate limitations and monitoring requirements for boiler blowdown.

III. Proposed Permit Period: Five years. The Proposed NPDES Permit requires compliance with the most stringent requirements of either the promulgated (October 8, 1974) or proposed (October 14, 1980) standards of performance for new sources (40 CFR 423). Data on "priority pollutants" can not be collected from waste sources since the plant is not yet in operation. Evaluation of expected effluent quality submitted by the applicant and data submitted by other utilities for operating power plants in Region IV have led the permit writer to the tentative conclusion that additional treatment for priority pollutants is not likely for any pollutants (other than oxidants (chlorine) as described above) and that a full five-year permit should be issued. However, to assure that this judgement is correct, the permittee will be required to submit priority pollutant data not later than one year after the commercial operation date of Unit 1. Additionally, a reopener clause is included in the permit (Part III.K.) in the event that excessive levels of priority pollutants are found. A further reopener clause (Part III.J.) has been included in the event that requirements more stringent than those proposed on October 14, 1980, are ultimately promulgated.

APPENDIX 6.2

FDER CONDITIONS OF CERTIFICATION

State of Florida Department of Environmental Regulation
Jacksonville Electric Authority
SJRPP Units 1 & 2
PA 81-13
CONDITIONS OF CERTIFICATION

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State of Florida Department of Environmental Regulation
Jacksonville Electric Authority
SJRPP Units 1 & 2
PA 81-13

CONDITIONS OF CERTIFICATION

I. Air

The construction and operation of SJRPP Units 1 & 2 at the Jacksonville steam electric power plant site shall be in accordance with all applicable provisions of Chapters 17-2, 17-4, 17-5 and 17-7, Florida Administrative Code. In addition to the foregoing, the permittee shall comply with the following conditions of certification:

A. Emission Limitations

1. Based on a maximum heat input of 6,144 million BTU per hour, stack emissions from SJRPP Unit 1 & 2 shall not exceed the following when burning coal:

   a. SO_2 - 1.2 lb. per million BTU heat input, maximum two hour average, 0.76 lb/MMBtu on a 30-day rolling average.

   b. NO_x - 0.60 lb. per million BTU heat input.

   c. Particulates - 0.03 lb. per million BTU heat input.

   d. Visible emissions - 20% (6-minute average), except one 6-minute period per hour of not more than 27% opacity.

2. The height of the boiler exhaust stack for SJRPP Unit 1 & 2 shall not be less than 640 ft. above grade.

3. Particulate emissions from the coal handling facilities:

   a. The permittee shall not cause to be discharged into the atmosphere from any coal processing or conveying equipment, coal storage system or coal transfer and loading system processing coal, visible emissions which exceed 10 percent opacity. Particulate emissions shall be controlled by use of control devices.

   b. The permittee must submit to the Department within thirty (30) days after it becomes available, copies of technical data pertaining to the selected particulate emissions control for the coal handling facility. These data should include, but not be limited to, guaranteed efficiency and emission rates, and major design parameters such as air/-cloth ratio and flow rate. The Department may, upon review of these data, disapprove the use of any such device if the Department determines the selected control device to be inadequate to meet the emission limits specified in 3(a) above. Such disapproval shall be issued within 30 days of receipt of the technical data.

4. Particulate emissions from limestone and flyash handling shall not exceed the following:

   a. Limestone silos - 0.050 lb/hr.

   b. Limestone hopper/transfer conveyors - 0.65 lb/hr.

   c. Flyash handling system - 0.2 lb/hr.

5. Visible emissions from the following facilities shall be limited to 10% opacity: (a) limestone and flyash handling system, (b) limestone day silos and (c) flyash silos.

6. Compliance with opacity limits of the facilities listed in Condition 5 will be determined by EPA reference method 9 (Appendix A, 40 CFR 60).

7. Construction shall reasonably conform to the plans and schedule given in the application.

8. The permittee shall report any delays in construction and completion of the project which would delay commercial operation by more than 90 days to the Department's St. Johns River Subdistrict Office.

9. Reasonable precautions to prevent fugitive particulate emissions during construction, such as coating of roads and construction sites used by contractors, regrassing or watering areas of disturbed soils, will be taken by the permittee.

10. Coal shall not be burned in the units unless both electrostatic precipitator and limestone scrubber are operating properly except as provided under 40 CFR Part 60 Subpart Da.

11. The two auxiliary boilers shall fire No. 2 fuel oil with a maximum sulfur content of 0.76 percent by weight, a maximum ash content of 0.01 percent by weight, an ap-

proximate heating value of 19,500 Btu per pound and a maximum viscosity of 3.6 centistokes at 100° F. Samples of all fuel oil fired in the boilers shall be taken and analyzed for sulfur content, ash content, heating value and viscosity. Accordingly, samples shall be taken of each fuel oil shipment received. Records of the analyses shall be kept a minimum of the two years to be available for FDER's inspection.

12. The same quality No. 2 fuel oil, used for the auxiliary boilers, shall be used for the main boilers Units 1 and 2 during start-up and low load operation.

13. Maximum emissions from either of the auxiliary boilers shall be limited to 0.8 lb/MMBTU for SO_2, 0.1 lb/MMBTU for P.M., and 20% opacity for visible emissions.

14. Coal fired in Units 1 and 2 shall have an ash content not to exceed 18% and a sulfur content not to exceed 4% by weight. Coal sulfur content shall be determined and recorded in accordance with 40 CFR 60.47a.

15. No fraction of flue gas shall be allowed to bypass the FGD system to reheat the gases existing from the FGD system, if the bypass will cause overall SO_2 removal efficiency less than 90 percent or as otherwise provided in 40 CFR Part 60, Subpart da. The percentage and amount of flue gas bypassing the FGD system shall be documented and records kept a minimum of two years available for FDER's inspection.

16. JEA shall keep records of the frequency, duration, load and manner of operation of the auxiliary boilers. During normal operation of the plant the boilers shall not operate more than seven (7%) percent of the time on an annual basis without prior approval of the Department. However, prior to commercial operation and during boiler start-up, shutdown of the main plant or plant upset, the auxiliary boilers may be operated more frequently.

B. Air Monitoring Program

1. The permittee shall install and operate continuously monitoring devices for each main boiler exhaust for sulfur dioxide, nitrogen oxide, carbon monoxide, carbon dioxide and opacity. The monitoring devices shall meet the applicable requirements of Section 17-2.710, FAC, and 40 CFR 60.47a. The opacity monitor may be placed in the duct work between the electrostatic precipitator and the FGD scrubber.

2. The permittee or Jacksonville Bio-Environmental Services Division shall operate two ambient monitoring devices for sulfur dioxide in accordance with EPA ref-

erence methods in 40 CFR, Part 53, and two ambient monitoring devices for suspended particulates. The monitoring devices shall be specifically located at a location approved by the Department. The frequency of operation shall be every six days commencing as specified by the Department.

3. The permittee shall maintain a daily log of the amounts and types of fuel used and copies of fuel analyses containing information on sulfur content, ash content and heating values.

4. The permittee shall provide stack sampling facilities as required by Rule 17-2.700(4) FAC.

5. The ambient monitoring program may be reviewed by the Department and the permittee annually after start-up of Unit 1. The monitoring program may be expanded or modified as deemed necessary by the Department. Modifications shall be effected in accordance with the provisions of Condition XXV.

6. Prior to commercial operation of the source, the permittee shall submit to the Departement a standardized plan or procedure that will allow the permittee to monitor emission control equipment efficiency and enable the permittee to return malfunctioning equipment to proper operation as expeditiously as possible. The permittee shall also submit to the Department a plan to monitor salt drift from the cooling towers and the impact of the salt drift on vegetation. A salt drift monitoring program shall be implemented by December 1, 1984.

C. Stack Testing

1. Within 60 calendar days after achieving the maximum capacity at which each unit will be operated, but no later than 180 operating days after initial start-up, the permittee shall conduct performance tests for particulates SO_2, NO_x, and visible emissions during normal operations near (±10%) 6144 MMBtu/hr heat input and furnish the Department a written report of the results of such performance tests within 45 days of completion of the tests. The performance tests will be conducted in accordance with the provisions of 40 CFR 60.46a, 48a, and 49a.

2. Performance tests shall be conducted and data reduced in accordance with methods and procedures outlined in Section 17-2.700 FAC.

3. Performance tests shall be conducted under such conditions as the Department shall specify based on representative performance of the facility. The permittee shall make available to the Department such records as may be necessary to determine the conditions of the performance tests.

4. The permittee shall provide 30 days prior notice of the performance tests in order to afford the Department the opportunity to have an observer present.

5. Stack tests for particulates NO_x and SO_2 and visible emissions shall be performed annually in accordance with conditions C. 2, 3, and 4 above.

D. Reporting

1. For SJRPP, stack monitoring, fuel usage and fuel analysis data shall be reported to the Department's St. John's River Subdistrict Office on a quarterly basis commencing with the start of commercial operation in accordance with 40 CFR, Part 60, Section 60.7., and in accordance with Section 17-2.08, FAC.

2. Utilizing the SAROAD or other format approved in writing by the Department, ambient air monitoring data shall be reported to the Bureau of Air Quality Management of the Department quarterly. Commencing on the date of certification, such reports shall be due within 45 days following the quarterly reporting period.

3. Beginning one month after certification, the permittee shall submit to the Department a quarterly status report briefly outlining progress made on engineering design and purchase of major pieces of air pollution control equipment. All reports and information required to be submitted under this condition shall be submitted to the Administrator of Power Plant Siting, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida, 32301.

E. Operating Restrictions

1. The permittee shall not operate its Southside, Northside, or Kennedy Generating Station in such a manner as to cause violation of ambient air quality standards for SO_2 when SJRPP is operating.

2. The permittee shall file with the Department, St. Johns River Subdistrict Office and the Jacksonville Bio-Environmental Services by June 1, 1984, the SJRPP/JEA system proposed operating plan and supporting justification that will include the procedures JEA will follow to permanently eliminate emissions from steam generating units equivalent to the impact of the emissions of Southside Units 1 and 2. The Secretary of the Department shall indicate the Department's approval or disapproval within 90 days of receipt. The proposed operating plan shall also contain proposals for operating during air pollution episodes pursuant to 17-2.320(3), FAC., including use of such alternatives as washed coal at SJRPP.

3. The operating plan shall include retirement of Southside Units 1 and 2, or equivalent units, cold storage, construction of tall stacks or other equivalent programs.

4. The schedule for implementation of the plan shall be consistent with the startup of SJRPP.

II. Water Discharges

Any discharges into any waters of the State During construction and operation of SJRPP Units 1 and 2 shall be in accordance with all applicable provisions of Chapter 17-3, Florida Administrative Code, and 40 CFR, Part 423, Effluent Guidelines and Standards for Steam Electric Power Generating Point Source Category, except as provided herein. Also, the permittee shall comply with the following conditions of certification:

A. Plant Effluents and Receiving Body of Water

For discharges made from the power plant the following conditions shall apply:

1. Receiving Body of Water (RBW)

The receiving body of water has been determined by the Department to be those waters of the St. John's River and any other waters affected which are considered to be waters of the State within the definition of Chapter 403, Florida Statutes.

2. Point of Discharge (P.O.D.)

The point of discharge has been determined by the Department to be where the effluent physically enters the waters of the State in the St. Johns River or Browns Creek.

3. Thermal Mixing Zones

The instantaneous zone of thermal mixing for the cooling system shall not exceed an area of 17 acres. The temperature at the point of discharge into the St. John's River shall not be greater than 105 degrees F. The temperature of the water at the edge of the mixing zone shall not exceed the limitations of Paragraph 17-3.05(1)(d). Cooling tower blowdown shall not exceed 96° F. as a 24 hour average.

4. Chemical Wastes

All discharges of low volume wastes (demineralizer regeneration, floor drainage, labs drains, FGD blowdown and similar wastes) and metal cleaning wastes shall comply with Chapter 17-3. If violations of Chapter 17-3 occur, corrective action shall be taken. These wastewaters shall be directed to an adequately sized and constructed treatment facility.

During periods when treated wastewater does not comply with pH discharge limitations, the treated wastewater may be recycled to the coal pile runoff sedimentation pond, except when the sedimentation pond has insufficient capacity to retain the recycled wastewater and the runoff from a rainfall event equal to or less than a ten year, 24 hour storm.

5. Coal Pile

Coal pile runoff shall be directed to the central wastewater treatment Facility and shall not be directly discharged to surface waters, except that discharge of stormwater runoff from the coal pile is allowed only during periods of high rainfall in excess of the ten year, 24 hour storm.

6. Chlorine

The concentration of total residual chlorine discharged from Units 1 & 2 and/or Northside Generating Station shall not exceed 0.1 mg/l at the POD nor 0.01 mg/l beyond an instantaneous mixing zone of 17.0 acres. Chlorine resulting from chlorination of either unit at

SJRPP shall not be discharged more than two hours per day and no unit shall be chlorinated simultaneously with any other unit at SJRPP or at Northside Generating Station. Levels of free available chlorine shall not exceed 0.5 mg/l for an instantaneous maximum nor 0.2 mg/l on a two hour average from the blowdown of either cooling tower. In the event that 40 CFR, Part 423 is revised with respect to chlorine limitations, such discharge limitations shall apply to cooling tower blowdown. Chlorine shall not be discharged from the SJRPP during periods when chlorine is being discharged from any unit at NGS except if due to cooling tower makeup (from ambient or from chlorination of NGS).

7. pH

The pH of the combined discharges shall be such that the pH will fall within the range of 6.0 to 9.0.

8. Polychlorinated Biphenyl Compounds

There shall be no net discharge of polychlorinated biphenyl compounds.

9. Combined Low Volume Wastes and Coal Pile Runoff

The combined low volume wastes and coal pile runoff shall be treated to control pH, total suspended solids and toxic metals prior to being discharged. The following effluent limitations will apply:

Effluent	Daily Maximum	Maximum 30-Day Daily Average
TSS	50 mg/l*	30 mg/l
Oil and Grease	15 mg/l	10 mg/l
pH	6-9	6-9

The design plans and specifications of the treatment system shall be submitted to the Department for review and approval prior to construction. The Department will indicate approval or disapproval within 45 days.

*100 mg/l allowed when only low volume wastes are being treated.

10. Metal Cleaning

Metal cleaning wastes shall be treated as appropriate prior to discharge to the cooling water system. The following effluent limitations shall apply:

Effluent	Daily Maximum	Maxmimum 30-Day Daily Average
TSS	100 mg/l	30 mg/l
Oil and Grease	20 mg/l	15 mg/l
Iron	1 mg/l	
Copper	1 mg/l	

11. Solid Waste and Gypsum Storage Areas

There shall be no direct discharge of stormwater runoff to surface waters from the gypsum storage areas, nor from the solid waste areas prior to closure without treatment (closure will be as defined in the solid waste management plan).

12. Storm Water Runoff

During plant operation, necessary measures shall be used to settle, filter, treat or absorb silt-containing or pollutant-laden stormwater runoff to limit the suspended solids to 50 mg/l or less at the POD during rainfall periods less than the 10-year, 24-hour rainfall, and to prevent an increase in turbidity of more than 50 Jackson Turbidity Units above background in waters of the State.

Control measures shall consist at the minimum of filters, sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt - and sediment-laden runoff. The pH shall be kept within the range of 6.0 to 8.5 at the POD.

13. Coal Unloading Facility Percolation Pond Overflow

There shall be no direct discharge to surface waters from the coal unloading facility wastewater treatment system percolation pond. Any discharge from the facility shall be reported to the Department and the Environmental Protection Agency. The quantity of flow and duration of flow shall be estimated during such episodes.

14. Mixing Zones

The discharge of the following pollutants shall not violate the Water Quality Standards of Chapter 17-3, FAC, beyond the edge of the designated instantaneous mixing zones as described herein.

Pollutants	Mixing Zone	
Aluminum	125,600 M^2	31 Acres
Copper	125,600 M^2	31 Acres

Cyanide	125,600 M^2	31 Acres
Iron	125,600 M^2	31 Acres
Mercury	125,600 M^2	31 Acres
Silver	125,600 M^2	31 Acres
Oil and Grease	125,600 M^2	31 Acres
Selenium	80 M^2	0.02 Acres
Chlorides	80 M^2	0.02 Acres

15. Variances to Water Quality Standards

In accordance with the provisions of Sections 403.201 and 403.511(2), F.S., Jacksonville Electric Authority is hereby granted variances to the water Quality Standards of Chapter 17-3.121, F.A.C., for Aluminum, Copper, Iron, Mercury and Silver and 17-3.061, F.A.C., for Oil and Grease but only at such times as the natural background levels of the St. Johns River approach or exceed those standards. In any event, the discharge from the SJRPP shall comply with the effluent limitations set forth in paragraph II.A.16. The variances for mercury, copper, and silver shall only be for two years from the commencement of commercial operation, but may be extended by the Secretary based on results of monitoring data on wastewater treatment plant efficiency and ambient water quality and bioassays performed for copper, mercury, and total residual chlorine. A Bioassay test program shall be implemented after review and approval by the Department. The test program shall be submitted to the Department by December 1, 1983. The Department shall indicate its approval or disapproval within 60 days.

16. Effluent Limitations

The following effluent limitations shall apply for Aluminum, Copper, Iron, Mercury, Silver, and Oil and Grease at the locations specified:

a. Cooling Tower Blowdown - Cycles of concentration on a daily average shall not exceed 1.5: Daily average concentrations of chemicals in the cooling tower blowdown shall not exceed 1.5 times the concentrations present in the intake of the applicant's Northside Generating Station.

b. Wastewater Treatment Facility Discharge - Instantaneous maximum concentrations shall not exceed:

Aluminum	1.5 mg/l
Copper	1.0 mg/l
Iron	1.0 mg/l
Mercury	41.1 ug/l
Silver	6.4 ug/l
Oil and Grease	20 mg/l

c. POD to the St. Johns River - Copper concentrations shall not exceed 0.18 mg/l.

B. Water Monitoring Programs

The permittee shall monitor and report to the Department the listed parameters on the basis specified herein. The methods and procedures utilized shall receive written approval by the Department. The monitoring program may be reviewed annually by the Department, and a determination may be made as to the necessity and extent of continuation, and may be modified in accordance with Condition No. XXV.

1. Chemical Monitoring

The following parameters shall be monitored during discharge as shown, commencing with the start of commercial operation of SJRPP and reported quarterly to the Department's St. Johns River Subdistrict Office:

Parameter	Location	Sample Type	Frequency
Flow, Groundwater	Wellfield Pipeline	Recorder	Continuous
Flow, Cooling Water Make-up	Intake	Pump Logs	Daily
Flow, Cooling Tower Blowdown	Cooling Towers	Pump Logs	Daily
Flow, CWTF*	Prior to Pump Sump	Pump Logs	Daily
Flow, Oily Waste-Water collection Basin	Prior to Pump Sump	Pump Logs	Daily

*CWTF = Central Wastewater Treatment Facility

pH	Pump Sump Outfall to NGS	Recorder Grab	Continuous One/per week
Temperature	Outfall to NGS	Recorder	Continuous
TSS	Oily Waste Basin, Metal Cleaning Waste Retention Basin	Grab 24 Hour Composite	Two/per week One/day
	CWTF and Sewage Treatment Facility	8 hour Composite	Two/week Monthly
Chlorine,Total Residual	Cooling Tower Blowdown POD and intake Discharge to Browns Creek (During construction only)	Multiple Grab	Weekly
Free Available	Cooling Tower	" "	"
Oil and Grease	Oily Wastewater Collection	3 Grab Composite	Two/week
	Metal Cleaning Waste Retention Basin CWTF	" "	"
	Brown's Creek	As described in Condition IV. A	
Metals	Intake and Sump Pump	24 Hour Composite	Once/week starting 90 days after commercial start-up for three months, two/month for the next six months, then monthly thereafter
Aluminum	"		"
Arsenic	"		"
Chromium	"		"
Copper*	"*		"
Cyanide**	"**		"
Iron	"		"
Lead	"		"
Mercury	"		"
Nickel	"		"
Selenium	"		"
Silver	"		"
Zinc	"		"
BOD	STP Influent and effluent	8 Hour Composite	Monthly
COD	Metal Cleaning Waste Facility	24 Hour Composite	Daily

* At POD also
** At Intake only

Phosphorus	Metal Cleaning Facility	24 Hour Composite	Daily (when discharged)
Copper	" " "	" " "	"
Iron	" " "	" " "	"
Cycles-of-concentration	Cooling tower	Calculation	"

2. Groundwater Monitoring

The groundwater levels shall be monitored continuously at selected wells as approved by the St. Johns River Water Management District. Chemical analyses shall be made on samples from all monitored wells identified in Condition III. F. below. The location, frequency and selected chemical analyses shall be as given in Condition III.F.

The groundwater monitoring program shall be implemented at least one year prior to operation of SJRPP Unit 1. The chemical analyses shall be in accord with the latest edition of Standard Methods for the Analysis of Water and Wastewater. The data shall be submitted within 30 days of collection/-analysis to the St. Johns River Water Management District and to the DER St. Johns River Subdistrict Office.

III. Groundwater

A. General

The use of groundwater from the wellfield for plant service water for SJRPP shall be minimized to the greatest extent practicable, but in no case shall exceed 7.6 mgd on a maximum daily basis from any new wells or 5.1 mgd on an average annual basis.

B. Well Criteria

The submission of well logs and test results and location, design and construction of wells to provide plant service water shall be in accordance with applicable rules of the Department of Evironmental Regulation and the St. Johns River Water Management District(SJRWMD). Total water use per month shall be reported quarterly to SJRWMD commencing with the start of construction.

C. Well Withdrawal Limits

JEA is authorized to make a combined average annual withdrawal of 5.1 million gallons of water per day with a maximum combined withdrawal rate not to exceed 7.6 million gallons during a single day. Withdrawals may be made from a wellfield consisting of up to four (4) wells whose approximate locations are described in Figure 1.

After wells have been constructed, St. Johns River Water Management District may evaluate the individual wells and may recommend to the Department authorization of different withdrawals based upon hydrologic characteristics for the individual wells. The Department pursuant to Section 403.516, F.S. may modify the above withdrawal limitations with the concurrence of SJRWMD and the permittee.

D. Water Use Restriction

Said water is restricted to uses other than main steam condensing. Any change in the use of said water will require a modification of this condition.

E. Emergency Shortages

In the event an emergency water shortage should be declared pursuant to Section 373.175 or 373.246, F.S., by St. Johns River Water Management District for an area including the location of these withdrawal points, the Department pursuant to Section 403.516, F.S., may alter, modify, or declare to be inactive, all or parts of Condition III. A.-F. An authorized Water Management District Representative, at any reasonable time, may enter the property to inspect the facilities.

F. Monitoring and Reporting

JEA shall, within the time limits hereinafter set forth, complete the following items.

1. JEA shall install a flow meter for the production wellfield and will maintain pump logs for operation of each production well in compliance with SJRWMD specifications on all production wells.

2. JEA shall submit to SJRWMD, on forms available from the District, a record of pumpage for each meter installed in F.1. above. Said pumpage shall be provided on a monthly basis, and shall be submitted by April 15, July 15, October 15, and January 15 for each preceding calendar quarter.

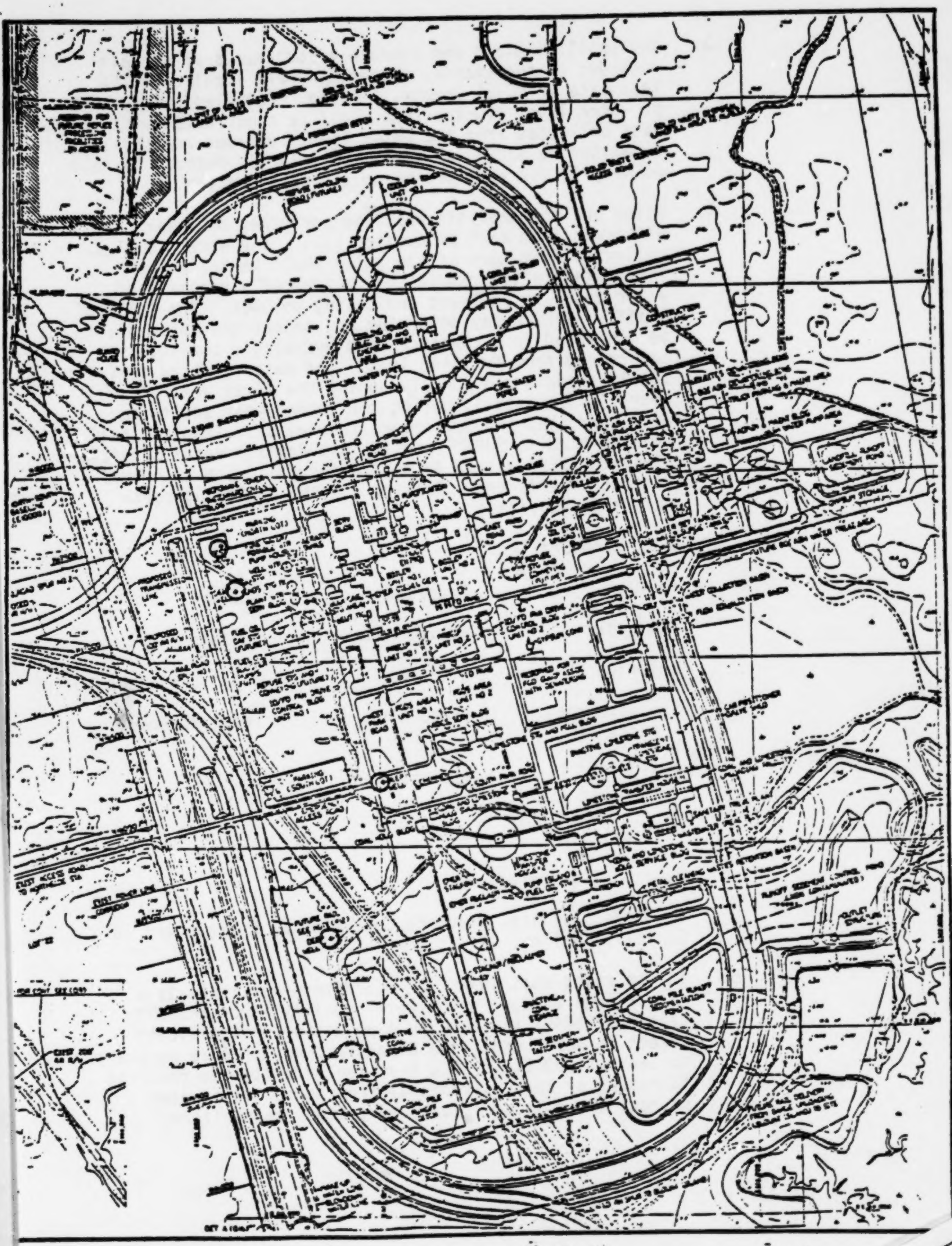
PERIMETER DITCH
COOLING TOWER UNIT NO 1
COOLING TOWER UNIT NO 2
CIRC WATER PIPES
SOLID WASTE DISPOSAL ACCESS ROAD
CONSTRUCTION
GYPSUM STORAGE
FUTURE BOT ASH WATER TREAT AREA
PARKING (NORTH LOT)
PROPOSED TRANSMISSION LINE
BOILER UNIT NO 1
BOILER UNIT NO 2
FLUE GAS AREA UNIT NO 1
FLUE GAS AREA UNIT NO 2
ID/FD FAN DRIVE CONTROL BLDG UNIT NO 1
ID/FD FAN DRIVE CONTROL BLDG UNIT NO 2
GYPSUM CONV
LIMESTONE STG AND MILL BLDG
INACTIVE LIMESTONE STG
PARKING (SOUTH LOT)
COAL AND LIMESTONE SERVICE BLDG
METAL CLEANING WASTES RETENTION BASIN
RUNOFF SEDIMENT CONTROL POND
OUTLET STRUCTURE
INACTIVE COAL STORAGE
COAL PILE RUNOFF SEDIMENTATION POND
EAST ACCESS ROAD TO NORTHSIDE STA

FIGURE 1

Reproduced from best available copy.

3. JEA shall maintain and operate a continuous water level recorder on the standby production well located at the test site in Duval County, Florida. Detailed hydrographs of water level fluctuations shall be constructed with the data collected from the water level recorder and shall be submitted to SJRWMD by April 15, July 15, October 15, and January 15 for each preceding calendar quarter.

4. Water quality analysis shall be performed on water withdrawn from each production well. The water samples collected from each of the wells shall be collected immediately after removal by pumping of a quantity of water equal to at least two casing volumes. The JEA and staff of SJRWMD may determine and adjust the intervals to be monitored in accordance with hydrologic conditions determined from drilling logs. The water quality analyses shall be performed monthly during the first year of operation, quarterly during the second year and twice each year (May and September) thereafter. Results shall be submitted to SJRWMD and the Bio-Environmental Services Division (BES) within 45 days after following such analyses were performed. Testing for the following parameters is required:

   a. When Drilled:

   Calcium
   Potassium
   Chloride
   Specific conductance
   Radium 226 (only if gross Alpha is greater than 15 pci/1)

   Magnesium
   Bicarbonate
   Nitrate
   Gross Alpha
   Radiation

   Sodium
   Sulfate
   Total Dissolved Solids
   Total Phosphate

   b. During operation:

   Chloride, Sulfate, Specific Conductance, Nitrate and Total Dissolved Solids.

5. In the event that SJRWMD or BES determines there is a significant change in the water quality (substantially caused by SJRPP and causing a potentially significant effect on water use), the Department may propose pursuant to Section 403.516, F.S., that the permittee be required to reduce or cease withdrawal from these groundwater sources and that additional parameters be monitored.

6. Minimum Water Level Restrictions

If the Department and SJRWMD at a future date establish a minimum water level of general applicability to all users in the aquifer or aquifers hydrologically associated with these withdrawals, they may propose pursuant to Section 403.516, F.S. that JEA reduce or cease withdrawal from these groundwater sources at times when water levels fall below these minimums.

G. Shallow Aquifer Monitoring Wells

After consulation with the DER and SJRWMD, JEA shall install a monitoring well network to monitor groundwater quality horizontally and vertically through to the top of the Hawthorne Formation's first clayey lithologic Unit. Groundwater quantity and flow directions will be determined seasonally at the site through the preparation of seasonal watertable contour maps, based upon water level data obtained during the applicants preoperational monitoring program. From these maps the water quality monitoring well network will be located. Monitoring well locations and designs shall be submitted to the Department and SJRWMD for review. Approval or disapproval of the locations and design shall be granted within 60 days. Monitoring wells shall be installed upgradient and downgradient from each solid waste disposal area, each liquid waste pond and each coal pile storage area. An additional monitoring well will be placed immediately downgradient of the first section of each solid waste landfill to be utilized. Insofar as possible, these monitoring wells may be selected from the existing wells and piezometers used in the permittees preoperational monitoring program. Existing wells will be properly sealed in accordance with Chapter 17-21, F.A.C., whenever they are abandoned due to construction of facilities or landfill cells. The water samples collected from each of the monitor wells shall be collected immediately after removal by pumping of a quantity of water equal to at least two casing volumes. The water quality analyses shall be performed monthly during the year prior to commercial operation and quarterly thereafter. Results shall be submitted to the Department and the SJRWMD by the fifteenth (15th) day of the month following the month during which such analyses were performed. Testing for the following constituents is required around unlined ponds or storage areas.

TDS

Conductance

pH

Redox

Sulfate

Sulfite

Cadmium

Zinc

Copper

Nickel

Selenium

Chromium

Color

Chloride

Iron

Aluminum

Arsenic

Beryllium

Mercury

Lead

Gross Alpha

Conductivity shall be monitored in wells around all lined solid waste disposal sites, coal piles, and wastewater treatment and sedimentation ponds.

H. Leachate

1. Zone of Discharge

Leachate from the solid waste landfills, sludge disposal test cells, coal storage piles, wastewater treatment ponds, or sedimentation ponds shall not contaminate waters of the State (including both surface and groundwaters) in excess of the limitations of Chapter 17-3, FAC., beyond the boundary of a zone of discharge extending to the top of the Hawthorne Formation below the waste landfill cell or pond rising to a depth of 50 feet at a horizontal distance of 200 feet from the edge of the landfill or ponds; provided that DER may provide a larger zone of discharge if warranted by the solidwaste test program.

2. Corrective Action

When the groundwater monitoring system or solid waste test program shows a potential for violation of the groundwater water quality standards of Chapter 17-3, FAC, at the boundary of the zone of discharge, the appropriate ponds, FGD landfill, or coal pile shall be bottom sealed, relocated, or the operation of the affected facility shall be altered in such a manner as to assure the Department that no violation of the groundwater standards will occur beyond the boundary of the zone of discharge.

IV. Control Measures During Construction

A. Stormwater Runoff

During construction, appropriate measures shall be used to settle, filter, treat or absorb silt-containing or pollutant-laden stormwater runoff to limit the suspended solids to 50 mg/l or less at the POD during rainfall periods less than the 10-year, 24 hour rainfall, and to prevent an increase in turbidity of more than 50 Jackson Turbidity Units above background in waters of the State beyond 50 meters from the POD to Brown's Creek. Oil and grease shall not exceed 5 mg/l at the discharge from the borrow pit into Brown's Creek.

Control measures shall consist at the minimum of sediment traps, barriers, berms or vegetative planting. Exposed or disturbed soil shall be protected as soon as possible to minimize silt- and sediment-laden runoff. The pH shall be kept within the range of 6.0 to 8.5 at the POD.

Final drainage plans illustrating any stormwater treatment facilities and conveyances for construction phases and ultimate operations for both the entire St. Johns River Power Park site and the Blount Island coal site shall be submitted to the St. Johns River Subdistrict Manager and the St. Johns River Water Management District for review and approval prior to construction of any such conveyance or facility. The Department shall indicate its approval or disapproval within 60 days of the submittal.

Stormwater drainage to Brown's Creek and Brown's Creek proper shall be monitored as indicated below beginning as soon as possible but not less than 30 days prior to the commencement of construction and continuing throughout construction:

Monitoring Point	Parameters	Frequency	Sample Type
*Stormwater drainage to Brown's Creek from existing borrow pit in southeast portion of site	BOD5, TOC, suspended solids, turbidity, dissolved oxygen, pH, TKN, Total phosphorus, Fecal Coliform, Total Coliform	**	**
	Oil and Grease	**	**
*West Fork of Brown's Creek at Point Downstream from entry of of stormwater from Power Park site by way of a borrow pit	BOD5, TOC, suspended solids, turbidity, dissolved oxygen, pH, TKN, Total phosphorus, fecal coliform, Total coliform	**	**

*Monitoring shall be conducted at suitable points for allowing a comparision of the characteristics of pre-construction and construction phase drainage and receiving waters.

**The frequency and sample type shall be as outlined in a sampling program prepared by the applicant and submitted by February 15, 1982, for review and approval by the St. Johns River Subdistrict Manager and the St. Johns River Water Management District. The districts will indicate their approval or disapproval within 30 days of submittal.

B. Sanitary Wastes

Disposal of sanitary wastes from construction toilet facilities shall be in accordance with applicable regulations of the Department and appropriate local health agency. The sewage treatment plant shall be operated in accordance with Chapters 17-3, 17-6, 17-16, and 17-19, FAC. The discharge of total residual chlorine to Brown's Creek from the borrow pit shall not exceed 0.01 mg/l.

C. Environmental Control Program

An environmental control program shall be established under the supervision of a qualified person to assure that all construction activities conform to good environmental practices and the applicable conditions of certification.

The permittee shall notify the Department by telephone if unexpected harmful effects or evidence of irreversible environmental damage are detected during construction, shall immediately report in writing to the Department and shall within two weeks provide an analysis of the problem and a plan to eliminate or significantly reduce the harmful effects or damage and a plan to prevent reoccurrence.

D. Construction Dewatering Effluent

Construction dewatering effluent shall be treated when appropriate to limit surface water discharges of suspended solids to no more than 50 mg/l. The discharge of construction dewatering liquids shall not cause turbidity in excess of 50 Jackson Turbidity Units above ambient beyond a 20 meter radius from the point of discharge. Weekly grab samples will be collected and analyzed for suspended solids.

A program for controlling the groundwater impacts of construction dewatering shall be submitted to the Department and the St. Johns River Water Management District for review prior to implementation.

V. Solid Wastes

Solid wastes resulting from construction or operation shall be disposed of in accordance with the applicable regulations of Chapter 17-7, FAC. The permittee shall submit a program for approval outlining the methods to be used in handling and disposal of solid wastes. Such program shall indicate at the least methods for erosion control, covering, vegetation and quality control.

Open burning in connection with land clearing shall be in accordance with Chapter 17-5, FAC. No additional permits shall be required, but the Division of Forestry shall be notified prior to burning. Open burning shall not occur if the Division of Forestry has issued a ban on burning due to fire hazard conditions.

VI. Operation Safeguards

The overall design, layout, and operation of the facilities shall be such as to minimize hazards to humans and the environment. Security control measures shall be utilized to prevent exposure of the public to hazardous conditions. The Federal Occupational Safety and Health Standards will be complied with during construction and operation. The Safety Standards specified under Section 440.56, F.S., by the Industrial Safety Section of the Florida Department of Commerce will also be complied with.

VII. Screening

The permittee shall provide screening of the site to the extent feasible through the use of aesthetically acceptable structures, vegetated earthen walls and/or existing or planted vegetation.

VIII. Potable Water Supply System

The potable water supply system shall be designed and operated in conformance with Chapter 17-22, FAC. Information as required in 17-22.108 shall be submitted to the Department prior to construction and operation. The operator of the potable water supply system shall be certified in accordance with Chapter 17-16, FAC.

IX. Transformer and Electric Switching Gear

The foundations for transformers, capacitors, and switching gear necessary to connect SJRPP Units 1 & 2 to the existing distribution system shall be constructed in such a manner as to allow complete collection and recovery of any spills or leakage of oily, toxic, or hazardous substances.

X. Toxic, Deleterious, or Hazardous Materials

The spill of any toxic, deleterious, or hazardous materials shall be reported in the manner specified by Condition XV.

— XI. Construction in Waters of the State

A. No construction on sovereign submerged lands shall commence without obtaining lease easement or title from the Department of Natural Resources and/or Trustees of the Internal Improvement Trust Fund.

B. Construction of intake and discharge structures, coal unloading wharf, and transmission towers shall be done in a manner to minimize turbidity. Turbidity screens should be used to prevent turbidity in excess of 50 JTUs above background beyond 150 meters from the dredging, pile driving, or construction site.

All spoil from connecting the SJRPP intake/discharge system to the NGS, and the coal unloading wharf shall be piped hydraulically or trucked to an upland disposal site of sufficient capacity to retain all material. Spoil from construction access canals shall be side cast and used for restoring natural bottom contours upon completion of construction.

C. Variances

1. Variances to the provisions of Section 17-3.061(h) for lead and Section 17-3.121(27) for silver for a period not to exceed a cumulative total of twelve months commencing on the start of dredging activities are granted in accordance with Sections 403.201(1)(c) and 403.511(2), F.S. at the coal unloading facility wharf site on Blount Island. Concentrations of at the boundary of a 150 meter radius mixing zone shall not exceed the following:

Lead	62 μ g/l
Silver	6.1 μ g/l

2. Variances to the provisions of Sections 17-3.121(9) for cadmium, 17-3.061(h) for lead, 17-3.121(18) for mercury and Section 17-3.121(27) for silver are granted pursuant to the provisions of Sections 403.201(1)(c) and 403.511(2), F.S. at the spoil area site overflow for a period not to exceed a cumulative total of twelve months starting with commencement of dredging activities. Concentrations at the boundary of a 150 meter radius mixing zone shall not exceed the following:

Cadmium	8.2 μ g/l
Mercury	0.2 μ g/l
Lead	62 μ g/l
Silver	6.1 μ g/l

D. Mixing Zones

During dredging activities mixing zone radii are designated for the following parameters:

Parameter	Distance to Edge of Mixing Zone[3] (m)
Aluminum	150
Antimony	18

	150
Copper	150
Cyanide	19
Iron	150
Lead	150
Mercury	150
Oil and Grease	25
Silver	150

XII. Solid Waste Landfill

A. The proposed solid waste landfill area shall be monitored and studied pursuant to a detailed groundwater testing and monitoring program as defined in Condition III, G. The results of the program will be used by the Department in determining whether JEA has affirmatively demonstrated that Florida Water Criteria (Chapter 17-3, F.A.C.) will not be violated.

B. JEA may implement a test program to demonstrate the quality and quantity of leachate from an unlined or uncontrolled waste facility. During the testing program, JEA shall either provide an impermeable liner under the solid waste disposal areas or shall utilize a chemical fixation process, stabilization or other approved methods to control leachate from the solid waste. Upon an affirmative showing that an uncontrolled solid waste facility will not cause violation of groundwater quality criteria, the Department may approve use of non-lined or uncontrolled landfill cells.

C. JEA shall utilize solid waste disposal area "B", north of Island Drive or the area previously designated for the bottom ash pond, prior to using disposal area "A".

D. Construction of perimeter berms shall be in conformance with the provisions of Chapter 17-9, F.A.C., regarding earthen dams.

E. Prior to the commencement of operation of solid waste disposal areas the following shall be submitted to the St. Johns River Subdistrict Manager for review and approval:

(1) Plot plan - should be drawn on a scale not greater than 200 ft. to the inch showing the following:

a. Dimensions and legal description of the site.

b. Location and depth corrected to MSL of soil borings.

c. Proposed trenching plan.

d. Cover stock piles.

e. Fencing or other measures to restrict access.

f. Cross sections showing both original and proposed fill elevation.

g. Location, depth corrected to MSL and construction details of monitoring wells.

(2) Design Drawings and Maps - may be combined with plot plan and should be drawn on a scale not greater than 200 ft. to the inch showing the following:

a. Topographic map with five foot contour intervals.

b. Proposed fill area.

c. Borrow area.

d. Access roads.

e. Grades required for proper drainage.

f. Typical cross sections of disposal site including lifts, borrow areas and drainage controls.

g. Special drainage devices.

(3) Soil map, Interpretive Guide Sheets, and a report giving the suitability of the site for such an operation.

(4) Contingency plan, including waste handling and disposal methods, in case of an emergency such as equipment failure, natural disaster or fire.

(5) Operation plans to direct and control the use of the site.

(6) An indication by discussion or drawings or both of how the site is designed to meet water quality standards of Chapter 17-3 and 17-4 FAC at the boundary of the zone of discharge.

Based on the Department's reviews of the above, additions to or modifications of the overall monitoring program may be required for monitoring of runoff, groundwaters, and surface waters which may be affected by the various landfilling operations.

The Department shall indicate its approval or disapproval of the submitted plans, drawings, maps, analyses and contingency plans within 60 days.

XIII. Transmission Lines

A. General

1. Filling and construction in water of the State shall be minimized to the extent practicable. No such activities

shall take place without obtaining lease, title or easement from the Department of Natural Resources and/or TIITF where required. Construction and access roads should avoid wetlands and be located in surrounding uplands.

2. Placement of fill in wetland areas shall be minimized by spanning such areas with the maximum span practicable.

3. The Department may determine that any fill required in wetlands for construction but not required for maintenance purposes shall be removed and the ground restored to its original contours after transmission line placement.

4. Where fill in wetlands is necessary for access, keyhole fills from upland areas should be oriented as nearly parallel to surface water flow lines as possible.

5. Sufficient size and number of culverts or other structures shall be placed through fill causeways to maintain substantially unimpaired sheet flow.

6. Turbidity control measures, including but not limited to hay bales, turbidity curtains, sodding, mulching and seeding, shall be employed to prevent violation of water quality standards.

7. The Right-of-Way shall be located so as to minimize impacts in or on stream beds such as the removal of vegetation, to the extent practicable. Within 25 feet of the banks of any streams, rivers, or lakes, vegetation shall be left undisturbed, except for selective topping of trees or removal of trees which topping would kill. If it is necessary to remove such trees within 25 feet of the banks of streams, rivers, or lakes, the root mat shall be left undisturbed.

8. Any necessary water quality certifications which must be made to the Corps of Engineers for water crossings not identified in the applications in this proceeding shall be made at the time of a finding of compliance for specific work at specific locations.

9. Construction activities should proceed as much as practicable during the dry season.

B. Other Construction Activities

1. Maintenance roads under control of the permittee shall be planted with native species to prevent erosion and subsequent water quality degradation where drainage from such roads would impact waters of the State significantly.

2. Good environmental practices such as described in Environmental Criteria for Electric Transmission Systems as published by the U.S. Department of Interior and the U.S. Department of Agriculture shall be followed to the extent practicable.

3. Compliance with the most recent version of the National Electric Safety Code adopted by the Public Service Commission is required.

4. Fences running parallel to the transmission line which may become conductive shall be grounded at appropriate intervals; fences running perpendicular to the line shall be grounded at the edge of the right-of-way.

5. Where suitable habitat is present, field reconnaissance of rare and endangered species shall be performed in order to minimize impacts on these species.

6. Open burning in connection with land clearing shall be in accordance with the applicable rules of the Department of Agriculture and Consumer Services. No additional permits shall be required, but the Division of Forestry shall be notified prior to burning. Open burning shall not occur if the Division of Forestry has issued a ban on burning due to fire hazard conditions.

C. Maintenance

1. Vegetative clearing operations for maintenance purposes to be carried out within the corridor shall follow the general standards for clearing right-of-way for overhead transmission lines as referenced in Sections XIII. A.7. and XIII.B.2. Selective clearing of vegetation is preferred over clearing and grubbing or clear cutting.

2. If chemicals or herbicides are to be used for vegetation control, the name, type, proposed use, locations, and manner of application shall be provided to the Department prior to their application for assessment of compliance with applicable regulations.

D. Archaeological Sites

Any archaeological sites discovered during construction of the transmission lines shall be disturbed as little as possible and such discovery shall be communicated to the Department of State, Division of Archives, History and Record Management (DAHRM). Potentially affected areas will be surveyed, and if a significant site is located, the site shall be avoided, protected, or excavated as directed by DAHRM.

E. Road Crossing

For all locations where the transmission line will cross State highways, the applicant will submit materials pursuant to the Department of Transportion's (DOT) "Utility Accomodation Guide" to DOT's district office for review and approval. All applicable regulations pertaining to roadway crossings by transmission lines shall be complied with.

F. Emergency Reporting

Emergency replacement of previously existing right-of-way or transmission lines shall not be considered a modification pursuant to Section 403.516, F.S. A verbal report of the emergency shall be made to the Department as soon as possible. Within fourteen (14) calendar days after correction of the emergency, a report to the Department shall be made outlining the details of the emergency and the steps taken for its temporary relief. The report shall be a written description of all of the work performed and shall set forth any pollution control measures or mitigative measures which were utilized or are being utilized to prevent pollution of waters, harm to sensitive areas or alteration of archaeological or historical resources:

G. Final Right-of-Way Location

A map of 1:24000 scale showing final location of the right-of-way shall be submitted to the Department upon completion of acquisition.

H. Compliance

Construction and maintenance shall comply with the applicable rules and regulations of the Department and those agencies specified in 17-17.54(2)(a) and (b), FAC.

XIV. Change in Discharge

All discharges or emissions authorized herein shall be consistent with the terms and conditions of this certification. The discharge of any pollutant not identified in the application or any discharge more frequent than, or at a level in excess of, that authorized herein shall constitute a violation of the certification. Any anticipated facility expansions, production increases, or process modification which will result in new, different or increased discharges or expansion in steam generating capacity will require a submission of new or supplemental application pursuant to Chapter 403, F.S.

XV. Non-Compliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any limitation specified in this certification, the permittee shall notify the manager of DER's St. Johns River subdistrict office by telephone during the working day in which permittee becomes aware of said non-compliance and shall confirm this situation in writing within seventy-two (72) hours supplying the following information:

a. A description and cause of non-compliance; and

b. The period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the non-complying event.

XVI. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this certification. Such systems are not to be bypassed without prior Department approval. Exceptions such as that during periods when light oil is used for ignition, or as provided in 40 CFR 60 Subpart Da, allow that the FGD system may be bypassed.

XVII. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact resulting from non-compliance with any limitation specified in this certification, including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying event.

XVIII. Right of Entry

The permittee shall allow the Secretary of the Florida Department of Environmental Regulation and/or authorized representatives, upon the presentation of credentials:

a. To enter upon the permittee's premises where an effluent source is located or in which records are required to be kept under the terms and conditions of this permit; and

b. to have access to and copy all records required to be kept under the conditions of this certification; and

c. to inspect and test any monitoring equipment or monitoring method required in this certification and to sample any discharge or pollutants; and

d. to assess any damage to the environment or violation of ambient standards.

XIX. Revocation or Suspension

This certification may be suspended or revoked pursuant to Section 403.512, Florida Statutes, or for violations of any Condition of Certification.

XX. Civil and Criminal Liability

This certification does not relieve the permittee from civil or criminal responsibility or liability for non-compliance with any conditions of this certifiation, applicable rules or regulations of the Department, or Chapter 403, Florida Statutes, or regulations thereunder.

Subject to Section 403.511, Florida Statutes, this certification shall not preclude the institution of any legal action or relieve the permittee from any responsibilities or penalties established pursuant to any other applicable State Statutes or regulations.

XXI. Property Rights

The issuance of this certification does not convey any property rights in either real or personal property, tangible or intangible, nor any exclusive privileges, nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. The applicant will obtain title, lease or right of use to any sovereign submerged lands occupied by the plant, transmission line structures, or appurtenant facilities from the State of Florida.

XXII. Severability

The provisions of this certification are severable, and, if any provision of this certification or the application of any provision of this certification to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of the certification shall not be affected thereby.

XXIII. Definitions

The meaning of terms used herein shall be governed by the definitions contained in Chapter 403, Florida Statutes, and any regulation adopted pursuant thereto. In the event of any dispute over the meaning of a term used in these general or special conditions which is not defined in such statutes or regulations, such dispute shall be resolved by reference to the most relevant definitions contained in any other state or federal statute or regulation or, in the alternative, by the use of the commonly accepted meaning as determined by the Department.

XXIV. Review of Site Certification

The certification shall be final unless revised, revoked or suspended pursuant to law. At least every five years from the date of issuance of this certification or any National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Water Pollution Control Act Amendments of 1972 for the plant units, the Department shall review all monitoring data that has been submitted to it during the proceeding five-year period for the purpose of determining the extent of the permittee's compliance with the conditions of this certification of the environmental impact of this facility. The Department shall submit the results of its review and recommendations to the permittee. Such review will be repeated at least every five years thereafter.

XXV. Modification of Conditions

The conditions of this certification may be modified in the following manner:

A. The Board hereby delegates to the Secretary the authority to modify, after notice and opportunity for hearing, any conditions pertaining to consumptive use of water, monitoring, sampling, groundwater, mixing zones, zones of discharge, leachate control programs, effluent limitations, air emission limitations or variances to water quality standards.

B. All other modifications shall be made in accordance with Sections 403.516, Florida Statutes.

XXVI. Flood Control Protection

The plant and associated facilities shall be constructed in such a manner as to comply with the Duval County flood protection requirements.

XXVII. Effect of Certification

Certification and conditions of certification are predicated upon design and performance criteria indicated in the application. Thus, conformance to those criteria, unless specifically amended, modified, or as the Department and parties are otherwise notified, is binding upon the applicant in the preparation, construction and maintenance of the certified project. In those instances where a conflict occurs between the application's design criteria and the conditions of certification, the conditions shall prevail.

XXVIII. Noise

To mitigate the effects of noise produced by the steam blowout of steam boiler tubes, JEA shall conduct public awareness campaigns prior to such activities to forewarn the public of the estimated time and duration of the noise.

XIX. Archaeological Sites

The following archaeological sites shown in Figure 2 shall be preserved whenever practical. If they must be altered by construction, then archaeological salvage excavation shall be performed prior to construction under the supervision of the Florida Department of State, Division of Archives, History and Records Management.

Site - 8Du669 8Du670

8Du671 8Du673

8Du674 8Du675

8Du677 8Du678

XXXI. Blount Island Coal Unloading Facility

Area drainage and rainfall runoff from the lined coal pile on Blount Island shall be directed to a lined treatment system designed to process the runoff from the 24-hour, ten-year storm. Wastewater treatment shall consist of as a minimum: removal of solids and metals by precipitation and sedimentation followed by pH adjustment to no less than 8.0 and final disposal by percolation. Sufficient capacity shall be provided to allow for accumulation of settled solids of up to 20 percent of the total pond volume. Solids removed from the sedimentation pond shall be disposed in a properly designed landfill.

The sedimentation pond liner shall be impervious and designed for the life of the facility. The liner shall be installed in such a manner as to prevent rupture during cleaning or removal of solids.

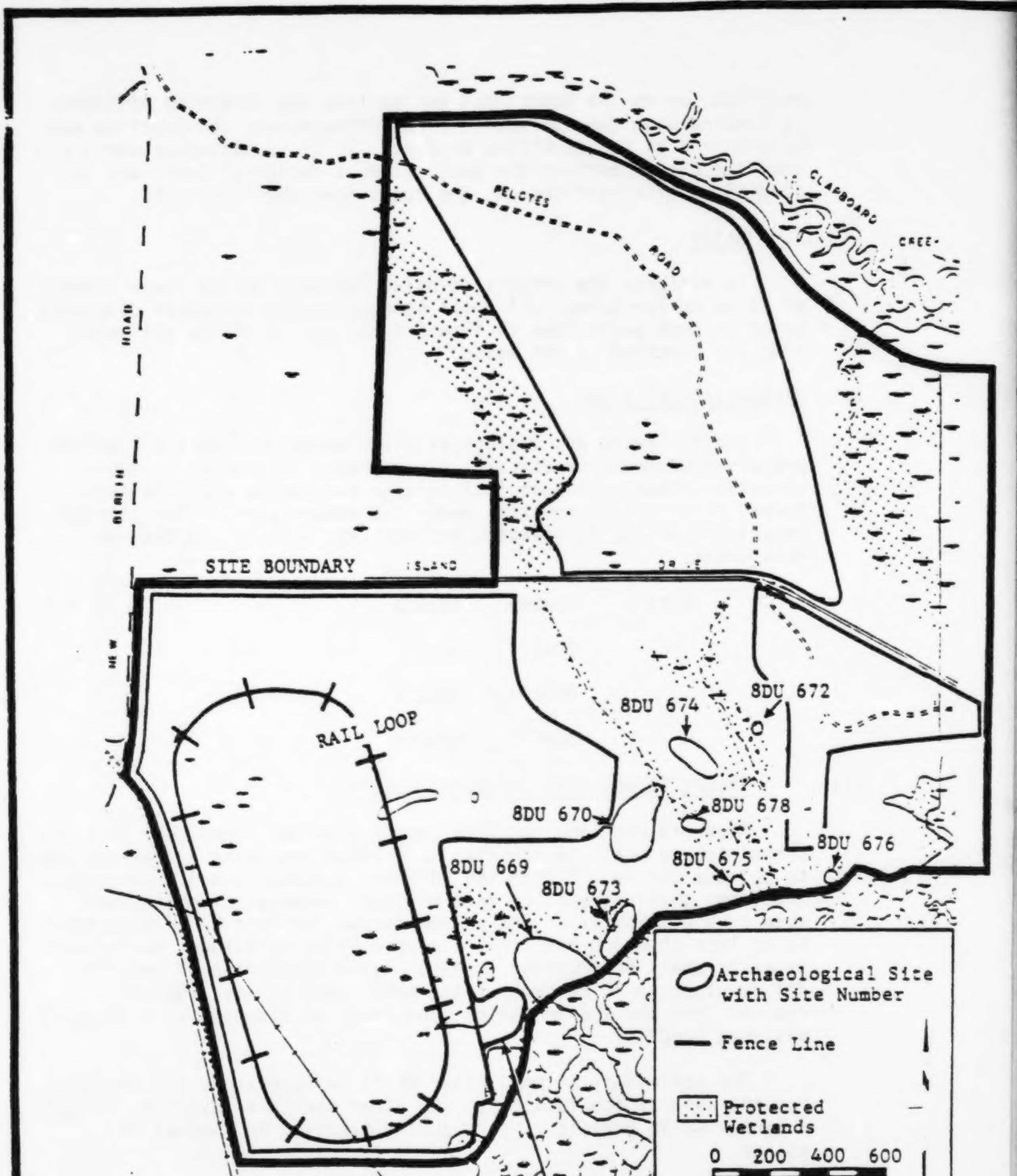
NEW BERLIN ROAD
PELOTES ROAD
CLAPBOARD CREEK
SITE BOUNDARY
ISLAND DRIVE
RAIL LOOP
8DU 674
8DU 672
8DU 670
8DU 678
8DU 676
8DU 675
8DU 669
8DU 673
SEDIMENTATION POND
Archaeological Site with Site Number
Fence Line
Protected Wetlands
0 200 400 600
Meters

FIGURE 2

APPENDIX 6.3

USFWS SECTION 7 ADDENDUM

United States Department of the Interior
FISH AND WILDLIFE SERVICE
15 NORTH LAURA STREET
JACKSONVILLE, FLORIDA 32202

January 29, 1982

Mr. Robert B. Howard
Chief, EIS Preparation Section
U.S. Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30308

FWS Log No. 4-1-81-134

Dear Mr. Howard:

On December 9, 1981, the Service issued a Biological Opinion to your agency with reference to the issuance of a new source NPDES permit to Jacksonville Electric Authority for the St. Johns River Power Park. The proposed action involves the construction of a new 1,200 megawatt coal-fired generating station at the Eastport site in Jacksonville, a coal unloading facility on Blount Island and attendant transmission lines.

On March 16, 1981, the Jacksonville District Corps of Engineers (COE), issued Public Notice 81P-0298 covering, in part, the dredging necessary for the coal unloading facility and transmission line towers in Mill Cove.

Dredging of approximately 21 acres will be required in the area of the proposed ocean vessel coal unloading wharf. It will be dredged to a depth of 38 feet below MSL, which is consistent with the design depth of the Fulton-Dame Point Cutoff Channel. A total of 551,000 cubic yards of material will be removed from this area. Of this total, 381,000 cubic yards is suitable for fill material and 170,000 is spoil material, which will be disposed of on Quarantine Island.

Construction of the transmission line towers in the Mill Cove area will be accomplished via a barge mounted crane. A temporary channel will be required for access into Mill Cove. The channel will be approximately 45 feet in width and -8 feet MSL in depth (worst case.) It is estimated that approximately 45,000 cubic yards of material will have to be dredged, assuming maximum barge draft and beam. The dredged material will be temporarily placed at the side of the construction channel and turbidity screens will be used where necessary. As each tower is completed, the dredged material will be backfilled into the channel, restoring it to its original level.

We stated in our Biological Opinion that we would request a seperate Section 7 consultation from the COE with reference to the West Indian manatee and the proposed dredging activities. It has been pointed out to us that EPA is the lead agency for this action, therefore it is not necessary for the COE to carry out this consultation. It is our intention, therefore that this letter supplement our Biological Opinion, thereby bringing to a conclusion the Secion 7 consultation regarding this action.

In your October 26, 1981 letter, your agency determined that the proposed action(s) may affect listed threatened and endangered species, which included the manatee. While manatees are year round residents of the St. Johns River in the Jacksonville area, with an estimated population of 25 or more, their distribution in the river system changes with climatic conditions. During the warmer months they are disbursed throughout the river and its tributaries. When the water temperature of the St. Johns River drops below 20°C they tend to seek and stay in warmer water, and in the case of Jacksonville, this would be in the discharge water of the Jacksonville Electric Authority's Kennedy Generating Station and the adjacent Alton Packaging Corporation plant on Tallyrand Road, several miles upstream from the Eastport site.

The potential of a manatee being in the area of the proposed dredging would, therefore, be less during the colder period of the year from mid-November through mid-March and all dredging activity should be undertaken during this period.

Manatees will disperse, however, into other sections of the river during extended periods of cold water when it becomes necessary for them to feed or during warm spells when the St. Johns River water temperatures rise above the 20°C range. This means that even though the potential for harm to a manatee is substantially less during the winter months it does not preclude the presence of the animals at the Eastport site, therefore we believe the following precautions should also be incorporated into permits necessary to perform the required dredging work:

> The Contractor will instruct all personnel associated with the construction of the project about the presence of manatees in the area and the need to avoid collisions with manatees. All vessels associated with the project shall operate at "no wake" speeds at all times while in shallow waters, or channels, where the draft of the boat provides less than three feet clearance of the bottom. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits. Vessels transporting personnel between the landing and the dredge shall follow routes of deep water to the extent possible. All personnel should be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Endangered Species Act and the Marine Mammal Protection Act. The Contractor shall be held responsible for any manatee harmed, harassed, or killed as a result of the construction of the project.

Any collision with a manatee will be reported immediately to the Chief, Environment and Resources Branch and the Fish and Wildlife Service in Jacksonville. Following project completion, a report summarizing the above incidents shall be submitted to the Chief, Environment and Resources Branch.

Pending acceptance of these precautions, it is our Biological Opinion that the proposed dredging operations for both the coal unloading facility and Mill Cove Transmission lines are not likely to jeopardize the continued existence of the West Indian manatee or adversely modify its Critical Habitat.

As stated previously, this letter is to supplement our Biological Opinion issued to EPA on December 9, 1981. If there are any modifications made in the project or if additional information becomes available relating to threatened and endangered species, reinitiation of consultation may be necessary.

Sincerely yours,

Jerry C. Grover

Jerry C. Grover
Acting Area Manager

RECEIVED
FEB 4 1982
WAPORA, INC.
ATLANTA OFFICE

ENVIRONMENTAL IMPACT STATEMENT
BRANCH
RECEIVED
FEB 01 1982
REGION IV · EPA

APPENDIX 6.4

ARCHAEOLOGICAL MEMORANDUM OF AGREEMENT

**Advisory
Council On
Historic
Preservation**

1522 K Street, NW
Washington, DC 20005

MEMORANDUM OF AGREEMENT

WHEREAS, the Environmental Protection Agency (EPA) proposes to grant a National Pollutant Discharge Elimination System (NPDES) permit for construction of the St. Johns River Power Park generating station, Duval County, Florida; and,

WHEREAS, pursuant the regulations of the Advisory Council on Historic Preservation (Council), "Protection of Historic and Cultural Properties" (36 CFR Part 800), EPA in consultation with the Florida State Historic Preservation Officer (SHPO) has determined that this undertaking will have an adverse effect on the St. Johns River Power Park Archeological District, a property eligible for the National Register of Historic Places; and,

WHEREAS, pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. Sec. 470(f)) and the Council's regulations EPA has requested the comments of the Council; and,

WHEREAS, representatives of the Council, EPA, and the Florida SHPO have consulted and reviewed the undertaking to consider alternatives to avoid or satisfactorily mitigate the adverse effect;

NOW, THEREFORE, it is mutually agreed that the undertaking will be implemented in accordance with the following stipulations to avoid or mitigate the adverse effects.

Stipulations

EPA will condition its permit on compliance with the following measures.

A. Archeological Data Recovery

1. Prior to the initiation of any construction or other land-disturbing activities which could affect archeological sites 8 DU 669, 8 DU 677, the undisturbed portion of 8 DU 634, or other sites in the Archeological District, a detailed data recovery plan, including a research design that addresses both regional and more general research problems, will be developed. The plan will be prepared in accordance with previous archeological survey and testing results and with reference to the standards contained in the Council's Handbook, Treatment of Archeological Properties (Attachment 1).

2. The plan will be submitted to the Florida SHPO and the Council for review prior to implementation. If neither party objects within 15 working days after receipt of the plan, the plan will be implemented; if either party objects EPA will consult with the Florida SHPO, the Council, and the Jacksonville Electric Authority in order to resolve the objections.

B. Archeological Site Protection

1. EPA will ensure that plans for protecting those portions of the St. Johns River Power Park Archeological District not directly affected by construction or other land-disturbing activities, including fencing and access restrictions, are developed and implemented in consultation with Florida SHPO.

C. Transmission Line Corridors

1. Prior to the selection of the final transmission line alignment, archeological field survey(s) will be conducted in consultation with the Florida SHPO along any portions of the proposed rights-of-way previously identified as archeologically sensitive in "Site Certification Application--Environmental Information Document for Proposed St. Johns River Power Park," Appendix K (1981). Survey work will be undertaken with reference to 36 CFR Part 66, Appendix B (Attachment 2).

2. Identified archeological resources will be evaluated in consultation with Florida SHPO. If there is any question as to whether a property meets the National Register Criteria (36 CFR Sec. 60.6), a determination of eligibility will be requested from the Secretary of the Interior in accordance with 36 CFR Part 63. Any archeological resources found to meet the Criteria will be avoided or preserved in place whenever feasible through minor alignment shifts, tower placement, changes in construction methods, or other measures. When this is not feasible, the Florida SHPO will be consulted and a treatment consistent with the Council's Handbook, Treatment of Archeological Properties (Attachment 1) and approved by the Florida SHPO will be developed and implemented.

D. Additional Stipulations

1. All archeological work will be conducted under the direct supervision of an archeologist(s) who meets, at a minimum, the appropriate qualifications set forth in 36 CFR Part 66, Appendix C (Attachment 3).

2. All archeological materials, along with field notes, maps, drawings, and photographic records, will be curated at a suitable repository agreed upon by the Florida SHPO, EPA, and the Jacksonville Electric Authority.

3. Copies of the final reports of archeological investigations will be supplied to the Florida SHPO, the Council, and Interagency Archeological Services (National Park Service, Department of the Interior, Washington, D.C. 20243) for possible submission to the National Technical Information Service (NTIS).

F

4. In accordance with National Register precedures (36 CFR Part 60), documentation concerning the condition and significance of the St. Johns River Power Park Archeological District will be forwarded within 2 years following the completion of data recovery so that nominations, boundary changes, and eligibility status will be kept current.

5. If any of the signatories to the Agreement determines that the terms of the Agreement cannot be met, or believes a change is necessary, that signatory shall immediately request the consulting parties to consider an amendment or addendum to the Agreement. Such an amendment or addendum shall be executed in the same manner as the original Agreement.

Robert Garvey March 5, 1987 (date)
Executive Director
Advisory Council on Historic Preservation

(date) March 13, 19
Environmental Protection Agency
Region 4

(date) 3/30/8
Florida State Historic Preservation Officer

(date)
Chairman
Advisory Council on Historic Preservation

APPENDIX 6.5

Pages 4-137 and 4-138 from the Draft SAR/EIS there is also a potential for some of the leachate to reach the shallow rock aquifer. Although the leachate would be highly diluted, there is a possibility that some of the pollutants in the leachate could be picked up in low concentrations by wells using the shallow rock aquifer near the SJRPP. Therefore, there is some remote, long term potential for human health impacts due to leachate contamination of groundwater supplies.

4.13.2 Impacts of Alternatives

A detailed assessment of net changes in air emissions, water discharges, and solid waste generation has been provided in other Appendices. The assessment includes an evaluation of the proposed project and four alternatives. A brief statement as to potentially adverse or beneficial nature of each alternative with respect to human health is provided in this section. The analysis is based on the assumption that when pollutants entering the environment show a net increase, human health is adversely affected. Only comparative health impacts among the alternatives are presented. Absolute estimates of increased deaths and illnesses are not possible due to the lack of detailed information.

4.13.2.1 Air Emissions

There is widespread agreement that a general degradation of air quality can be associated with an increase in morbity and mortality. Moreover, there is no argument that the risks are extremely variable and that the young, the elderly, and the infirmed are the most susceptible groups. Of the four proposed alternatives, Alternative 1 would have the greatest potential for adverse impacts on air quality and, consequently, human health of the Jacksonville area. Alternative 1 would result in net increase in emissions of SO_2, particulates, NOx, CO, HC, and hydrochloric acid (Table 4.2-17). These increases are due to conversion of Northside #1 and #3 from burning oil to coal and addition of a refuse-fired power plant. Relative to the proposed project, Alternative 1 could result in greater health impacts because of larger increases in concentrations of SO_2, particulates, CO, and trace elements. Alternatives 2, 3, and 4 could improve human health conditions because of a decrease in air emissions in the Jacksonville area.

Human health could benefit from Alternatives 2, 3, and 4 in the FP&L service area outside of Sanford. Under these alternatives, human health could be affected in Sanford due to net increases in air emissions of SO_2, NOx, CO, HC, and trace elements. The health effects due to SO_2 would be greatly reduced if the conversion to coal of FP&L's Sanford facility includes an FGD system to meet NSPS standards. Relative to the proposed project, Alternatives 2, 3, and 4 could potentially result in greater adverse health impacts due to relatively higher net air emissions in the Sanford area.

Human health could be adversely affected in the FP&L service area and outside Sanford because of increased emissions of CO, HC, and hydrochloric acid from proposed refuse plants.

4.13.2.2 Wastewater Discharges

Of the four proposed alternatives, Alternatives 1, 3, and 4 would increase the net bulk discharges of copper, iron, mercury, aluminum, silver, and oil and grease to the surface waters of Jacksonville. Relative to the proposed project, the increases are small and thus the adverse health impacts would be less than those for the proposed project.

Alternatives 2, 3, and 4 would increase the net mass loading of copper, iron, mercury, aluminum, silver, and oil and grease to St. Johns River near Sanford. These discharges, however, would not be expected to cause violations of the water quality criteria for mercury, iron, aluminum, and silver. They should not therefore pose a threat to the public health. However, the discharge of copper could aggravate existing water quality problems since this parameter occasionally exceeds the State standards.

4.13.2.3 Other Vectors

None of the alternatives include unlined solid waste disposal facilities. Solid waste landfills were assumed to be lined in all alternatives. No adverse health affects due to leachates from solid waste disposal areas are therefore expected.

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